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THE JOURNAL

OF

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Vol. II

MARCH, 1907.

No. 1

THE PROFESSIONAL SPIRIT.

All may not have a clearly defined idea of what it is that constitutes the distinction (in their relation to the public) between the man engaged in commercial pursuits and the man who follows a profession, yet all will agree that there is, or should be, a distinction. Without knowing just why it is, we have come to expect more of the professional man—not more intelligence, more culture, more sagacity, but something less tangible and less easily defined. For him there has been erected a higher standard of conduct. He may not always measure up to it, but until he does so he can never enter the ranks of professional men. He may wear the badge of professionalism without ever entering into its spirit. What, then, is the essential difference between the professional spirit and the commercial spirit, and why is it that practices regarded proper and legitimate in the one, are frowned upon when found in the ranks of the other, and if found, bring it and its membership into disrepute? The professional man and the business man are both servants of the public. Both render

a service of incalculable value. The happiness and welfare of society are dependant upon their united service. But both are not actuated in that service by the same motive. The one sacrifices itself just so far as that sacrifice will contribute to its own ends. The interests of those whom it serves are subordinated to the service of self. Business is essentially selfish. The spirit of professionalism is one which, in its service, will make sacrifices which may defeat the very object sought after by the commercial spirit. Service, and the interest of those whom it serves, is placed above every other consideration. This spirit expresses itself in many ways; in its willingness to go where duty calls; in regarding those engaged in the same calling, not as competitors, but co-workers; by the freely giving of itself and its time to those in need of its ministrations, who may be unable to render compensation; in manifold ways of which the world has no knowledge—its chief delight being found in the daily round of duty, and in the knowledge of work well done. There may be other things which are distinctive, but they are non-essential. The controlling difference is one of motive, and consciously or unconsciously, tribute is paid to this distinction, in the confidence with which the services of the professional man are sought, and in the universal belief that the interests of the seeker will be conserved. Of prime importance to the dental profession is the cultivation of this spirit. It, more easily perhaps than any other profession, lends itself to commercial exploitation. This, and the youthful position which it occupies among the professions, may account for the number of those who are attracted to its ranks for this purpose. Such a spirit, always reprehensible, becomes especially odious when found in a profession devoted to the alleviation of human suffering. Then it is that we see that most demoralizing of all spectacles, the afflictions of mankind exploited for personal gain.

The inculcation of this spirit is the first duty of the dental educator. Too many men are graduated from professional schools

with little or no idea of the responsibility which rests upon them as professional men. Unless they have the professional instinct largely developed in them, it is not unnatural that they should drift into commercial methods. Too much emphasis cannot be given to this side of the professional student's education. Not only should the instructors in these institutions be possessed of this spirit, and avail themselves of every opportunity to impress it upon the undergraduate, but men of especial fitness, whose sole duty it is to give emphasis to this feature of the professional man's education, should be associated with every institution, that by example and repeated reiteration, the lesson may be so learned that it shall take possession of the lives of those whose careers must shape the future destiny of our profession.

It is this spirit in the dental profession which has been persistent in its protest against the domination of its periodical literature by commercial influence. It is not that these journals may not render a valuable service. They have done so, and will continue to do so, just so long as that will serve its own end. But such journals can never satisfy the needs of a profession. In the very nature of things, it is impossible. "Do men gather grapes of thorns, or figs of thistles?" It is not enough that a journal be negatively in sympathy with these principles; it must be an earnest advocate of them, avoiding even the appearance of evil, if it would exercise that influence in the profession, which is not only the duty, but the prerogative of its high calling. Such a journal is not the competitor of the trade journal. It is an expression of professional life—one of the avenues through which it reaches out to its confreres, and seeks to encourage in them the spirit of growth. It has no aspiration above that of service.

And thus it is throughout the length and breadth of professional life. If there be those who, by corrupt practice and commercial methods, seek to bring discredit upon our profession, they shall fail. If there be those who would deny to us the possession of these ideals, they shall cease. While many obstacles

may yet beset our pathway, and the way seem long into the perfect light of day, yet these, too, shall vanish away, for to him who, individually or collectively, earnestly seeks the highest things in life, there can come no defeat. "He shall be like a tree planted by the rivers of water, that bringeth forth his fruit in his season; his leaf also shall not wither, and whatsoever he doeth shall prosper."

ARTHUR H. MERRITT.

THE INFLUENCE OF IMPERFECT NASAL RESPIRATION ON THE ORAL CAVITY.*

BY E. EDWIN FOSTER, M. D.
NEW BEDFORD, MASS.

The current of air which passes in and out of the lungs during twenty-four hours travels through the nose on an average of 20,000 times each way in normal respiration. Here it is relieved of particles of solid matter; its temperature is regulated to nearly that of the body, and the necessary moisture is supplied for its reception by the delicate lung tissues (1). It has been calculated that during a day two quarts of fluid is supplied by the nasal structure to the inspired air.

These important physiological functions of the nasal cavities attracted but little interest in this country until Bosworth (2), about twenty years ago, called attention to them. Soon after Aschenbrandt (3), Kayser (4) and Block (5) published exhaustive experiments which they had made. From that time to the present these functions have received more or less consideration.

It is as essential that the air be prepared by the nose before it enters the lungs as it is for the food to be prepared by the mouth before it enters the stomach.

During normal nasal respiration the lips are closed, the teeth of the opposing jaws are in contact, and the tongue completely fills the oral cavity with the exception of a small space between the dorsum of the tongue and hard and soft palate. This space, according to Mezger (6) and Donders (7) has a negative monometric pressure of from 2 to 4 m. m.

*Read before the American Academy of Medical Science at Boston, Massachusetts, March 6, 1907.

In this position the muscles are in a state of balance or tonicity which, in accordance with the generally accepted opinion maintains the relative position of the jaws to each other. The muscles of the lips and cheeks on the one side and the tongue on the other exert equal pressure upon the alveolar arch.

If nasal respiration be obstructed, by faulty function or weakness of the alae, hypertrophy or hyperplasia of the mucous membrane and glandular structures of the nose and naso-pharynx, atony of the turbinal bodies, abnormally placed structures, narrowly constructed bony frame-work, new growths, or any other cause interfering with the free passage of air, the nasal respiration is partly or completely abandoned; and, as a result, air must pass through the mouth, a cavity not intended for such use, and certainly unfit to properly prepare the air for the lungs.

In order to continue oral respiration the mandible is depressed, increasing the tension of the muscles and tissues of the cheeks, the lips are separated, the tongue instead of adhering to the roof of the mouth and pressing against the inner aspects of the upper teeth, lies free in the floor of the mouth, and the soft palate is drawn up instead of resting upon the base of the tongue.

To maintain these abnormal positions without fatigue the muscles producing them must hypertrophy.

If nasal respiration be only partly obstructed, the voluntary muscles are often able to continue nasal respiration during the waking hours, but as soon as sleep abolishes the voluntary function then oral respiration begins. This explains the statement so often made by parents, that their child seems to breath through the nose during the day, but when asleep breathes through its mouth, which constitutes a third or more of each twenty-four hours.

The constant passage of air, which is often dust-laden, over the mucous membrane of the mouth, fauces, and respiratory tract soon dries those tissues and lowers their resistance to pathogenic bacteria. The teeth also become carious, especially the upper ones, because these are more exposed, the lower teeth being partly protected by the tongue and saliva.

When nasal respiration is impossible, the mouth must perform two functions during the ingestion of food: that of preparing the food for the stomach, and supplying air to the lungs. This causes a peculiar and disgusting manner of eating.

The baby at the breast requires about fifteen or twenty minutes for the ingestion of a single meal. Under normal conditions it does not remove its mouth from the breast during that time; but, if nasal breathing be impossible, oral respiration must be resorted to, and as a result the baby can suck the nipple only a short time before partial asphyxia forces it to stop nursing. This procedure is repeated many times until hunger is satisfied, or, more often, the baby is exhausted by its efforts to supply the stomach and lungs at the same time. Either a moderate amount of milk mixed with air is swallowed, or an insufficient amount of nourishment is taken. Both tend to produce indigestion and malnutrition.

When the child begins to ingest solid food a similar condition exists. Instead of being able to properly masticate its food, it must bolt it—with a continuation of indigestion and malnutrition.

It is an established fact that oral respiration is not so deep and long as nasal, and as a consequence the interchange of gases within the lungs is not so complete (8). This allows an excess of carbon dioxide to remain in the blood, and a deficiency of oxygen to be absorbed. Kyle (9) confirms this later statement by his findings in a series of examinations of the blood of persons with nasal obstructions. He found in every case, before removal of the obstruction, a reduction in the number of the red corpuscles which are the oxygen-carriers. In some instances as few as 1,500,000 were present, 5,000,000 being the normal. The hemoglobin was found to be only 50 to 60 per cent. of the normal, and in many cases there was a slight increase of the white corpuscles.

After nasal respiration had been established the cells and hemoglobin gradually returned to their proper number and percentage.

Oral respiration also interferes with sleep. Instead of a quiet, restful sleep it is often interrupted with sudden awakenings and exhausting dreams.

Thus we find, as a result of oral respiration, indigestion; due to improperly prepared and digested food, impoverished blood; resulting from an incomplete exchange of gases within the lungs; and insufficient sleep which so weakens a growing child that not only is dentition delayed and decay of the teeth started, but the bony frame-work of the head and body is retarded in growth, and the resistance of the whole body is lowered to the invasion of

pathogenic bacteria, especially the oral cavity and respiratory tract, due both to the local and constitutional conditions.

In the earliest medical writings we find mention made of a peculiar facial expression and deformity of the superior maxilla associated with mouth-breathing.

Since the appearance of Wilhelm Meyer's (10) work on "Adenoid Vegetations," this facial expression has become known as the "adenoid facies." It may, however, be caused by other nasal obstructions. The face appears long, the point of the nose is pinched, the lower jaw hangs down, the mouth is open, the upper lip projects away from the teeth, the inner canthi of the eyes are drawn downward, the eyebrows raised, while the obliteration of the natural folds of the face gives to the person a stupid, vacant, semi-idiotic appearance. There is often a widening of the bridge of the nose, which is frequently crossed by a prominent vein.

The deformities of the superior maxilla, while not so constantly associated with mouth-breathing as the facial changes, are quite as characteristic. There is lateral narrowing of the alveolar arch, high palate, and prominence of the upper incisor teeth which tend to approach one another posteriorly. The occlusion of the teeth of the upper jaw, which are apt to be irregularly placed, is imperfect with those of the lower. As a rule the lower jaw is normal. The exception is generally when there are rickitic deformities in other parts of the body.

Although the association of these changes with oral respiration has been observed for centuries, still there appears to be a diversity of opinion as to the relation between cause and effect. Some consider the interference with nasal breathing as the cause of all variations from the normal, which the upper jaw may exhibit, while others regard these variations as the cause of the nasal obstruction.

In support of the former opinion we find several theories advanced to explain the way in which these deformities are produced. We will briefly consider only the more plausible ones.

(1) It is an acknowledged fact that the inactivity of an organ often prevents its development. In applying this to the nasal chambers through which air does not properly pass, there are two factors, which by some are considered of prime importance in preventing the perfect progress of the development of the upper

jaw. One is the abeyance of the natural functions, with the want of proper blood supply; the other is the absence of the mechanical force of the air upon the walls and sinuses of the nose. If these statements be true, the nasal chambers and the superior maxilla as a whole would be smaller in all dimensions, and the hard palate high and narrow.

(2) If we apply the same fact, that the inactivity of an organ prevents development, to the act of mastication which by mouth-breathers can only be imperfectly performed, we have another factor in preventing proper development of the upper jaw and perfect occlusion. Cryer (11) is of the opinion that the loss, on account of oral respiration, of the developing and moulding influence, which directly results from the percussive force of occlusion exerted by the mandible upon the maxillary arch is of great etiological importance in the irregularity in the upper dentures, and (12) that the lack of constant occlusion of the teeth is another important factor in not forcing the teeth and the alveolar processes outward.

(3) The continual downward and inward pressure against the lateral alveolar processes of the superior maxilla by the muscles of the cheek, which support the hanging mandible, and the absence of the backward pressure of the obicularis oris muscle upon the anterior teeth and their processes, have a detrimental influence upon the developing upper jaw teeth, especially during the early growing period and second dentition.

The existence of the lateral pressure of the cheek muscles can be demonstrated by placing a finger between the upper row of teeth and the oral surface of the cheek. When the jaws are opposed there is practically no pressure upon the finger, but if the jaws be separated there is then a decided pressure.

The question naturally occurs: why does not this force exert similar pressure upon the mandible? This has been answered by the constant lateral pressure of the tongue.

(4) The nursing baby exerts during each *meal at the breast* a negative pressure of about 75 c. c. m. of water upon the oral surface of the palate. This force is exerted many times a day during the most rapid growth of the bones of the body. Again, if we accept Mezger's and Donder's statement that there is a vacuum between the upper surface of the tongue and hard palate,

when the mouth is closed, then these forces tending to pull the palate downward would be absent during oral-respiration.

(5) Hubbard (13) and Dawbarn (14) are of the opinion that there is a downward pull exerted upon the palate by adherence of enlarged faucial tonsils to the pillars of the fauces.

If this force has any influence upon the shape of the palate, then the opposing muscles, the levator palati, which are on a constant tension by mouth-breathers, must also play a part.

As a proof of the theory that the interference of nasal breathing does have an influence in the abnormal development of the superior maxilla, the experiments of Ziem (15) and Collier (16) may be cited. Ziem found that by artificially occluding one-half of the nose in young animals there occurred an asynematrical development of the two sides of the nose and adjacent bone tissues, the obstructed half being undeveloped. This arrest of development extended to all adjacent tissues on that side. Collier produced deformities of the upper jaw in young animals, chosen indiscriminately, by blocking their noses for a long time with cotton wool.

As additional evidence of the influence of oral-respiration upon the upper jaw, I will briefly report the condition of two of my patients. One was a girl seven years of age, whose brother and sister had normal arches and occlusion. The mother was a strong, broad-faced Swede. Father dead. This child fell from a chair when a baby, striking on its face. When I examined the child, December, 1905, I found the cartilagenous part of the septum bent in such a way as to obstruct both nasal passages. The child has breathed through its mouth since the accident.

The other patient was a boy seven years old. His parents were both large, with normal heads. His brother and sister both had normal arches and perfect occlusion. The mother knows of no accident to account for an irregularity of the external shape of the nose, but says the child has breathed through its mouth for a long time. On examination, January, 1907, I found an angular deviation of the cartilagenous septum, obstructing both nasal cavities. This irregularity is certainly the result of trauma, and of long standing.

Both patients had a high palatal arch, V-shaped alveolar arch, a moderate degree of malocclusion and decay of nearly all the upper teeth.

In opposition to the theory just considered there is the one that the deformity is primary and nasal obstruction secondary. Siebenmann (17) and his scholars, Frankel (18), Grosheintz (19) and Haag (20), are the most ardent supporters of this theory. They devised an instrument (Palatometer) with which they measured the width of the alveolar arch and height of the palatal arch of different individuals with and without "adenoid vegetations," this being the principal cause of nasal obstructions which they considered. From these measurements they calculated an index, and by comparing these indices they arrived at the conclusion that individuals with "adenoid vegetations" had relatively the same height of palatal arch as normal, and are of the opinion that the high palatal and V-shaped alveolar arches depend upon the type of the skull. The normal type (Chamoposope) being the broad face with the wide nasal cavities and dome-shaped palate. The abnormal type (Leptoprosope) the one with a high, narrow face, narrow nasal cavities (Leptorrhine) high palatal arch and V-formed alveolar arch. They believe these types depend upon the congenital racial characteristics of the skull, and not upon the extrauterine influence of nasal occlusion.

Siebenmann says, in explanation of the common association of palatal deformity with mouth-breathing: "That the individual with a high palate, without exception, has narrow nasal cavities, and the swelling of the nasal mucous membrane, which is rarely absent with 'adenoid vegetation' becomes more obstructive when the palate is high and narrow than when low and broad; consequently oral-respiration is seen more often in individuals with a narrow face."

Other theories of the cause of palatal deformity have been advanced from time to time, principal among which is rickets. Lowy (21) believes the changes of rickets are the cause of all irregularities of the superior maxilla and nasal septum.

Stone (22), while studying the deformities of the spine in rickets, made some valuable observations regarding the cause of deformities of the superior maxilla. He has no doubt that there is a relation between obstruction of nasal respiration and these deformities, but thinks the deformities depend much more definitely on the severity of the rickets than on any other single factor. He found that usually in rickets there is an hypertrophy of the faucial and pharyngeal tonsils; and believes this increase of

lymphoid tissue is a part of the disease, and that both the deformity and nasal obstruction are the result of the ricketic process rather than the result of the nasal obstruction.

Schlauss (23), admitting that rickets does cause deformities of the upper jaw in isolated cases, believes the principal cause is due to abnormal osseous union of the palatal bones (Synostosis).

Rickets being a disease due to malnutrition it seems reasonable to believe it may, in a few cases at least, be secondary to the indigestion and impoverished blood which we have shown often results from oral respiration.

The theory that deformities of the superior maxilla are congenital, depending upon the racial characteristics of the skull and not upon extra-uterine influences, has only clinical evidence for its support, while the theory that these deformities are acquired, principally from the influences produced by the obstruction of nasal-respiration, has the support of animal experiments as well as that of my two cases, and I am sure that nearly every rhinologist has seen cases where the nasal obstruction was acquired and the palatal deformity resulted, without any question of a congenital narrow skull or the influence of rickets.

Parsons (24) is of the opinion that the narrow skull formation, which is considered congenital, may be acquired, due to anterior nasal stenosis. He bases his belief upon the presence of a long continued external atmospheric pressure upon young and soft bones, caused by the negative pressure within the nasal fossae and sinuses as would occur at each inspiration.

Accepting Parsons' view we would not expect to find so marked a deformity of the upper jaw when the cause of the nasal obstruction was located in the naso-pharynx, such as an enlarged pharyngeal tonsil. This is partly true, but in a majority of mouth-breathers, from post-nasal obstruction, there also exists an anterior obstruction. Under such conditions the palate usually has its characteristic deformity.

There being no known single factor to account for the cause of all the deformities, and as each theory of the different causes is supported by careful observers, we must at present, at least, conclude that the deformities may occur in given cases, as stated.

I believe, however, that the greatest number of all deformed superior maxillæ are acquired and are undoubtedly a result of oral-respiration, due principally to the loss of constant occlusion

of the teeth and imperfect mastication, secondarily to the pressure of the cheek muscles and absence of the stimulating influence of nasal-respiration upon the developing nasal fossæ and sinuses.

I do not believe the adhesion of enlarged faucial tonsils to the palatoglossus muscles, the absence of the suction-chamber between the tongue and palate and loss of the negative pressure during nursing has much, if any, influence upon the shape of the palate and teeth.

A lesser number of maxillary deformities are congenital, as those found in a narrow head.

The least number are due to rickets and other mentioned causes.

The logical treatment of the patients in whom interference with nasal-respiration is the cause of palatal deformity, should be first to remove the nasal obstruction, and second, to correct the palatal deformity. This is supported by the fact that the characteristic facial expression and palatal deformity associated with oral-respiration improve after nasal-respiration has been established.

The degree of the improvement, especially of the palatal deformity, depends upon the age of the individual and the length of time the deformity has existed.

The earlier the nasal obstruction is removed the better the results, both in preventing oral deformities and in correcting it when it has occurred.

The treatment of the individual with a congenital narrow skull should be to widen the palate, for this, we know, often widens the nasal cavities (25), which in many instances is sufficient to produce nasal-respiration. If, however, the widening of the palate does not allow respiration to take place through the nose during the day and night, then the rhinologist should correct any intranasal irregularity.

The ricketic patients, I believe, can be helped by establishing normal nasal-respiration.

As a result of a careful study of the uncivilized races, in whom mouth-breathing and irregularities of the teeth are rarely found, Catlin says: "If I were to endeavor to bequeath to posterity the most important motto which human knowledge can convey, it should be in three words—Shut your mouth."

This, as we are well aware, is impossible for many members

of our civilized society, and it is our duty as orthodontists and rhinologists to assist these unfortunates. We can, through our single or combined efforts, change the mouth-breather with a stupid, expressionless appearance and disfiguring irregular teeth to a nose-breather with an active, intelligent appearance and attractive, regular teeth.

CONCLUSIONS.

Imperfect nasal-respiration causes partial or complete oral-respiration which through its influences tends to produce the following:

1. Indigestion.
2. Impoverished blood.
3. Lowered resistance, especially of the upper teeth and respiratory tract.
4. Deformities of the superior maxilla, with imperfect dentition, both in quality and position.

The treatment of these conditions often requires the combined efforts of the orthodontist and rhinologist.

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THE MANAGEMENT OF A DENTAL PRACTICE.*

BY EDWARD C. BRIGGS, M. D., D. M. D.

The writer disclaims all responsibility in presenting this paper to the American Academy of Dental Science. Your Executive Committee chose the title and one of its members, Dr. Cutter, kindly suggested the subjects to be treated. If, therefore, in stating what I do in the conduct of my office the personal pronoun seems prominent, please blame the committee for the egoism and not me. It does not appear that I am expected to discuss the management of patients themselves, and, as a matter of fact, it seems to me that that subject, complicated as it is, can be dismissed in a few words. If you will "put yourself in his place," sincerely and truthfully, all things will be made plain before you. *You* would not want instruments of questionable cleanliness put into *your* mouth. You would not want to put your head on a napkin where another's head had been. You would not want to be in doubt whether the hands going to your mouth had been carefully washed after the previous patient. Nor would you like to see the operator stroke his moustache and then put his fingers unwashed into your mouth. If a patient seems unreasonable and is fretting over some condition which has arisen, don't stand on what you are pleased to call your dignity and end by losing your temper and your patient. Stop and think how it would seem to you if you had the patient's point of view. Admit all the patient's contentions that you can, and honestly do all that is possible to bring about a happy result. The end is harmony—the patient has renewed loyalty, and you get the credit of being a tactful man.

*Read before the American Academy of Dental Science, Boston, February 6, 1907

And now to the business arrangements: I will first speak of appointments.

Appointments are made for myself and six associates by one secretary. If a patient calls for an appointment, he is asked if he is suffering; if so, he is attended to by the one who is at leisure or who has the first free time. Of course, every one is anxious to find time, because that first visit may lead to the patient becoming permanently attached to the dentist who sees him.

If there is no special hurry, the patient is given a half hour for examination. This half hour may be with the one he asks to have, or, as is often suggested, the appointment may be with some one who has the first free time who will examine and report to the doctor who was first inquired for.

If I were the one receiving the report, and found it impossible to attend to the patient in a reasonably short time, it then becomes much easier to persuade the patient to go to the one who has just examined him than to go to an absolute stranger.

The appointments are made in a large diary, one page for each day of the year, and the patient is given a card—sample shown—not unlike a visiting card, with the day, date and hour of appointment written on it.

If wedging is necessary, such notice is written on the card with a date, four days previous to the appointment, on which the patient is to come for the wedge.

Regular patients, that is, those who have been seen before and are to be looked after at regular intervals, are given one, two, three or six months ahead, as their cases demand, two or three (the most) appointments; the first one of a half hour and the other two one hour or possibly one and one-half hours. In the first—of half an hour—the teeth are examined and any scaling and polishing done that the time admits of. Patients requiring a set piece of work like crown or bridge work are given what is known as a "group," "simple group" for a crown, "double group" for a bridge, and the appointment secretary, on being told, arranges the appointments close together, but with due allowance between for the laboratory work and the length of the appointments according to a prearranged system.

Patients having made appointments three, six or more months ahead are, at their request, notified one week before their sittings.

Unless a special group of appointments is evidently necessary no patient is allowed to engage more than three sittings in advance.

The engagement of time ahead by regular patients often fills up the time, even whole months, completely, thus not leaving space for the new or unexpected cases. These are provided for by keeping what is called the "emergency list," and when, as is sure to happen, engagements are cancelled, the time is filled from the emergency list.

Patients suffering from unexpected pain or disaster are attended by some associate who has free time, or, if absolutely demanding his own special dentist, the time is made for him by putting off some one who will not suffer by delay. It is the absolute rule of the office that any one in suffering takes precedence over all others, and any one whose time is taken away from him for such an emergency, who rebels, is politely told that we consider the relief of suffering humanity our first duty, and if he, the rebellious one, does not appreciate the justice and equity of that position, he can find some other dentist.

ASSOCIATES.

In receiving an associate into my office, the aim has been to so arrange that he shall feel perfectly independent and realize that aside from the fact that I am the elder member of the association and the medium through which patients come, he is in all full respects as free as I. As a matter of fact, he is perhaps more independent than I, since I am his agent in the matter of running the office, collecting the bills, hiring and discharging the employees and being the target for such patients as are in any way dissatisfied. He receives the labor of all the employees in common with his other associates. He equips his own operating room and purchases his own materials. He pays for all his privileges by paying to me as the owner of the office and the creator of the practice a per cent. of the cash he receives for his work. If no cash, then no payment, and if absent on account of illness or in the pursuit of pleasure there is no account for rent piling up against him. He is under no contract to remain, and only by mutual agreement can I close my dealings with him.

The percentage paid me by him is adjusted on a sliding scale, so much for a certain length of time, then a lesser amount for

another period, then another reduction, and so on until at length he reaches a per cent, which in my judgment and that of business men whom I have consulted is the proper amount to be set aside from one's gross income to run one's business. As the exact percentages is a matter which concerns my associates, I am not at liberty to state them. There is no doubt that associates who have been with me long enough to possess a full practice could take that practice and go to less expensive quarters, but I have no doubt they recognize, and recognize truly, that they could not accomplish as much work in a given time or retain so good a clientele when not providing such excellent service and equipment.

My associates can call on me at all times for consultation.

I make no pretense to being a superior operator to any of my associates. In fact, in referring patients to them, I am often able to say in reference to some particular piece of work that it will be done better than I can do it. I do maintain, however, and all of my confreres of the same number of years of practice will, I know, agree, that *experience* does give something that can be obtained in no other way, and a man of twenty to thirty years of experience who has not something to give to the man of five, ten or fifteen years has lived in vain and to no purpose.

EMPLOYEES.

As there is a goodly number of us associates—"we are seven"—there is, of course, a number of employees, but in my description of their work bear in mind that the system has always been the same, although when there were fewer associates, there were fewer employees.

At present the corps consists of three secretaries, four chair assistants, two laboratory assistants, a housekeeper, a janitor, a laundress and a door-boy.

One secretary has charge of all the appointments, and there is no idle moment for her. There were at the time of writing this paper ——— definite engagements on the seven books, to say nothing of the emergency lists. The arrangement of these, the notifications to patients, the constant changes, the finding of time for sudden calls, et cetera, keep one woman very busy.

One secretary keeps the books and sends out the bills. The accounts are kept by the card system and in double entry. The

billheads bear the names of the seven associates, but the cheques are made payable to the writer.

A statement of all unpaid accounts on the books is rendered the first of every month. To this system which the writer has pursued since the beginning of his practice is credited a somewhat remarkable immunity from so-called "bad accounts." This rule is so absolute that a patient who contracts a debt on the 30th of a month and has an appointment for the 1st of the following month finds in his morning mail of that first day a statement of his debt of the 30th ultimo.

This arrangement keeps the patient in touch with his account. He does not easily forget how often he has been treated or how much has been done. If he is a good business man he is glad to pay as he goes. If one of limited means, he finds it easier to pay a little at a time and not have at the end of three or six months a bill so large as to be difficult of attention. If a person is dilatory or inclined to dodge payment, he gets his bill each month with the accumulations, and after a fixed time "please remit" appears on the bill. Then, if not paid, it goes to a collector. Of the callous few who fall into the collector's hands, the majority succumb to his importunities.

All this is done as a matter of routine, being entirely in the hands of the bookkeeper, and if a personal friend, having fallen into careless ways, falls into the hands of the collector, his wounded feelings are soothed by being told he is the victim of the "System." He generally pays the bill, however.

To save clerical work, the account for the preceding month is rendered in a lump sum, but itemized accounts with full details are given to those who for any reason question the statement.

The third secretary is general utility. She answers the telephone, marks all the diagram cards, which, by the system of colored pencils and hieroglyphics, show at a glance complete details of all work done; orders all supplies and approves bills for same for the treasurer to pay; conducts all correspondence not specially related to appointments.

In the last half hour of the day she comes to a desk back of my chair, and, calling off the names of the day's patients, writes from my dictation a complete record of the work done and the fee. Patients taking the last hour expect this kind of inter-

ruption. As the fees are all given in a code, listeners are none the wiser.

From the different journals on which such records are written she marks the diagram cards.

CHAIR ASSISTANTS.

There is one assistant for every two operators, with the exception of one, who, by special arrangement, has one assistant to himself. As each assistant works only on one floor, it is quite easy to take care of two operators.

The assistant sterilizes the instruments and puts them away; gives help in operating when needed, although this is not encouraged as a rule. The patients in our office do not care to have a young woman of the laity looking into their mouths. There is a feeling of privacy about their affairs which makes them want only one person, and that a professional one, studying their infirmities. The assistant keeps notes of supplies and memoranda of such as need replenishing. She makes out the order slips (sample shown) for the laboratories, which are used by the laboratory assistants as a guide to their work and to send to the bookkeeper later on for her to make the charges. The laboratory assistant meantime has marked on the slip the cost of material used and the time spent in the work.

LABORATORY ASSISTANTS.

One is a man formerly a manufacturing jeweler. He does the plate work, bridge work, etc., but does not, of course, see patients.

The other assistant is a woman who does the porcelain work—making inlays, porcelain crowns, continuous gum, etc. The generally accepted belief that a woman can excel a man in matching ribbons applies to the matching of porcelains and makes a woman particularly successful in this department.

It is the intention to keep the equipment of the laboratories thoroughly up to date.

The housekeeper has charge of the janitor and laundress, looks to the upkeep of the house appurtenances and dusts the house twice every twenty-four hours.

The janitor sweeps the house from top to bottom every day and does the other work pertaining to his position. In addition,

he goes down town three times a week to do the banking and general errands.

The laundress, with an average of — pieces of linen a day, is kept pretty busy, although her burden is much lightened by the use of an electric iron.

The door-boy does the obvious and also runs errands between the offices.

The secretaries and laboratories are all connected by private telephone, saving many steps and much confusion. In my own operating room is a dial, operated from the desk of the secretary on my floor, where is shown by her, pressing the right button or buttons, the fact that a patient has arrived, length of appointment and work to be done. This will soon be extended to the other offices.

There is no time lost in changing patients. As the operator gets toward the end of his work, he presses a button which calls his assistant. She collects all the instruments which have been used, and as the patient leaves the chair, proceeds to change the head-rest cover and wipe around the cuspidor. In the meantime another electric signal has been sent to the secretary in the reception-room and the outgoing patient meets his successor coming in.

All new patients when asking for appointments are requested to give the name of the one who sent them, and this is recorded on the ledger card. This serves as a sort of voucher and also as a family tree—one can trace back, card to card, to the original patient.

The question of fees is always an interesting one to younger practitioners and also to many of the older ones. It seems to the writer best to fix in one's mind a minimum fee for an hour's work based on one's experience in practice and the environment in which he is placed. This stated fee is capable of increase as time and circumstances permit. Having this fixed sum in mind, make a definite charge for each operation. If the total much exceeds your average per hour, then trim it a bit. If it falls far short, raise it, but not necessarily to the full hourly rate. For example, I have by a combination of fortuitous circumstances done in one hour such fillings as a fair charge apiece would make an amount equivalent to two hour's work. I give the patient some

credit for the smoothness and rapidity of the work and split the difference with him, making a charge equivalent to one and one-half hours' work. Perhaps in the very next hour I do an operation for which ordinarily the fee would be equivalent to one-half hour's work. To be sure, the patient has been restless and difficult to work for, but I do not blind myself to the fact that the previous hour's hard sustained effort has not left me in the best condition to control patient number two, and so here again I split the difference with this patient. This strikes a general average, and one feels that he has dealt with justice and equity to both himself and his patient.

While it is undoubtedly true that no good dentist is ever paid quite enough for his services, it is also true that he must in order to be successful and to hold his practice conform to the financial standards of the locality in which he practices. In all other specialties a fixed fee is charged to every patient entering the office, however trivial the attention he receives—and the fee generally is not trivial. It seems to the writer that a dentist should take a different position because his practice is different. He does not as a rule deal with sporadic cases, but rather with regular patients and whole families of them. He should therefore aim to be the family protector and give much time and advice for which there can be no fee charged. For instance, if one of the children in my practice receives a blow while playing and thinks he has loosened or broken a tooth, I want him to feel that I am the first one to run to and not that he must first go home and see if his parents think it of enough consequence to send him to incur a fee. All such observations, brief attentions, time suggestions, et cetera, have no fee, ogre-like, hovering above them. For the same reason I make as a rule no charge for putting in wedges.

This general care and fathering of one's big family does not prevent coming down full and hard with a fee when actual operations have been performed. Patients will object to paying a dollar in one situation while cheerfully paying a hundred in the next.

Patients breaking appointments without due notice are charged for the time.

"Time is money" applies strictly to dentists, for they alone never can make up time lost, and it is fair to assume that he who wantonly or carelessly breaks an appointment is spending that

time more profitably to him either in pleasure or in making money.

While every associate does at will each and every kind of work that dentists may do, there is a tendency to specialize in orthodontic and prosthetic dentistry, and by general consent one associate does most of the one and another most of the other.

In closing let the writer express the hope that while his paper may not be of value in itself, it will at least be fruitful of a discussion that will shed much light and be of help to those seeking for the best and most practical ways of conducting a practice.

American Academy of Dental Science.

The regular monthly meeting of the American Academy of Dental Science, held Wednesday evening, March 6, 1907, at Young's Hotel.

After the banquet the Academy was addressed by E. Edwin Foster, M. D., of New Bedford, Mass.

Subject:

"The Influence of Imperfect Nasal Breathing on the Oral Cavity."

(For Dr. Foster's paper see page 000.)

Discussion.

Dr. Leland. I am not prepared to discuss at length this complete and satisfactory paper. I take pride in Dr. Foster's career as a graduate of my department of the City Hospital.

He has gone very completely into the development and theories which have been advanced.

Tho' it is said that these irregular developments are caused by the wrong development of the body as it grows in early years, we, as clinicians, would say it is due to the improper use of the respiratory tract in early life. Certainly we say that interference with nasal respiration changes the growth of the nasal tract. We have a curtailment of the nose and the lower jaw keeps right on growing. We have seen many cases where the upper jaw was 12 years of age and the under jaw corresponded to the age of the patient and was perhaps 25 years of age. In that case the teeth of the upper jaw would not strike the teeth of the lower jaw,

and had become decayed and had dropped out, due to lack of sufficient exercise.

This illustration gives us the indications which show us that the pressure of the lips and the cheeks hold the growth of the upper jaw and keeps it backward, while the under jaw grows with the growth of the individual.

Whatever theory we adopt here we have to say that where this condition has taken place our practice is to overcome it. We as rhinologists need the aid of the dentist who makes the teeth comfortable while we change the shape of the nasal passages. Many a case comes to us where the teeth cannot come into proper apposition, causing pain. When it is impossible for the patient to keep the mouth shut, it is my custom to send the patient for treatment by the dentist for malocclusion before I can make the patient keep the mouth shut.

Another element is habit. At this time of the year you will see nine people out of ten breathing thru the mouth. It is a habit we have got so accustomed to that it is impossible to get out of it. If the nose were placed behind the head and the mouth could be used only for mastication and ingestion of food we would realize that the nose had a use for breathing.

The practice of breathing thru the nose is to be advocated for the sake of the mouth, but also to rarify the air in drawing in and to compress it in blowing out.

It is the continual rarification and condensation of the air which allows us to keep the auxiliary cavities free and ventilated.

Then we come to the ear. This is an annex of the nose. The same condensation and rarification of the air keeps the drum head moving by means of its connection with the eustachian tube.

Seventy-five per cent. of antrum trouble is due to lack of proper respiration. The very slight movement keeps up the proper condition of the air so that the mouth, the throat, the ear and the accessory cavities are kept in order by the movement of air in respiration. I thank the Academy for allowing me to be present.

Dr. Potter. Have you any questions to ask?

Dr. Lett. Is snoring caused by anatomical change or does it predominate in mouth breathers, or is it present in normal breathers? I have a patient with Rigg's disease, who says that snoring began with the onset of Rigg's disease.

Dr. Foster. Snoring occurs during mouth breathing. The sound is produced by the flapping of the soft palate. It may take place during nasal respiration, but does not usually.

It may be that habit is a factor in a great many cases. The nasal passages are sufficiently wide, but the relaxation of the muscles allows mouth breathing during the night. This can be corrected by the chin piece, but if the nose is too small it should be attended to.

D. Lett. This patient is not a mouth breather, and the patient snores with the mouth closed.

Dr Foster. This spoils the theory.

Dr Fillebrown. There is a feature not brought out by the paper or the authorities quoted. What is the beginning of this false act?

Anatomical observations have not been made on the nose to see whether there is not at birth a deformity which causes breathing thru the mouth. I think there is. We will acknowledge the influence of subsequent circumstances. Non-development will be produced afterwards. But I find that the shape applied to the features after development. I think the beginning was in the type alluded to by some of the authorities. I do not think this condition is always acquired or that it can be prevented always.

The mouth is made to breathe and to eat with. But when the animal starts to run it breathes thru the mouth. When speaking or singing we breathe thru the mouth, because we cannot get air fast enough thru the nose.

In ordinary conditions we breathe thru the nose. In more violent exercise, such as singing or speaking we must breathe thru the mouth to get enough. I do not think the argument in regard to the moisture is quite sufficient. The moisture of the mouth is quite sufficient to moisten the air. We get about as many inches of space in the mouth as in the nose to moisten the air.

Now, in the use of the laryngscope, it has been found that as many conditions are found in the throat by students as there were different men and observers. The paper is interesting, well read and scientific.

Dr. Meriam. The receding chin is a typical feature of some of the Amazon tribes.

Are there any records of the developments of the bones of the African tribe, where there is a very feeble lower jaw?

Dr. Foster. My reading does not include anything on this subject.

Dr. Smith, Harvard Dental School. Is there reason why a rhinologist should refuse to remove adenoid vegetation, where the child had a V-shaped arch. In such a case a specialist has refused to remove the adenoid growth. The child is normal in physical development.

In a case of adenoid operation would the adenoids be likely to return in case there has been proper spreading of the arch?

Dr. Foster. The only contra-indication that I know of, is in a case of hemophilia or bleeding. In reply to question No. 2.

If the adenoid tissue is thoraly removed it should not return. In a few cases it will return, but usually it does not after proper curettment. The nasal space, after curetting is completely cleared with the finger-nail, which can be used as no other instrument can be used. The adenoids are concentrated largely in the center of the nasal pharynx, but the branches on the side, and sometimes the central mass, is removed when the accessory branches are not removed. The rhinologist failed in his duty if, after the operation, when the palate is high and the patient is still a mouth breather, he does not advise the patient to have the palate widened. It is equally important to have the palatal arch widened as it is to do the operation for the removal.

Dr. Potter. I have a patient with adenoids, with large tonsils, who has had adenitis. The surgeon refused to operate and the glands of the neck were allowed to slough away without any surgical treatment.

Dr. Foster. In some cases tuberculosis enters thru the adenoids or the tonsils, and this may be considered when the operation is advised. It is much more surgical to remove the primary foci.

Dr. E. C. Briggs. I will cite a case of a young man who had some injury to his nose from football play, which brought on mouth breathing. He was operated upon by eminent men, but persists in breathing thru his mouth. At seventeen years of age the teeth were in normal occlusion, but apparently as a result of mouth breathing the upper jaw became contracted, the lower jaw protruded and he became deformed by a prognathus jaw.

He could not bite the end of a cigar. Now the conditions have been restored and he has normal occlusion. Am I going to be able to hold him there if the mouth breathing continues? Apparently there is no remedy for the nose.

Personally I find in this cold air that breathing thru the mouth slightly is much more comfortable.

Dr. Foster. Possibly the functions of the dilators of the alæ of the nose have been lost. By care the patient can force himself to breath thru the nose. The patient can develop the function of dilating the nose during the day, but at night it is often necessary to use a wire dilator to hold the wings out during the night.

Dr. Ainsworth. This is a very interesting paper. I wish also to thank Dr. Leland. There is much diversity of opinion as to which is the cause and which the effect. There is an article by Dr. Bogne in the Journal, in the discussion of which someone says, "If we depart from nature we get into trouble." When we depart from the natural development we do injury.

Ordinarily the infant at the breast, in drawing its nourishment, does so with a strong pull against the mouth. It takes very little pressure ordinarily to produce an effect on the bones of the face. Does the strong suction permit a better development of the adjacent bones and so forth? The force of nursing is considerable, whereas the bottle baby has only to swallow, with no force exerted against the bones of the roof of the mouth.

Adenoids have grown upon us in late years. I have the feeling that the nursing bottle and our spreading appliances go hand in hand.

I have delayed the spreading of the arch to the twelfth year, which I now think is too late. The earlier we get at this trouble the better. Manipulation instead of mutilation should be used in correcting this condition. In late years the rhinologists have changed their operation materially.

They and dentists are so intimately connected that they must go hand in hand.

Dr. Foster. It seems to me that the child at the breast exerts a negative pressure, whereas the negative pressure of the bottle baby is practically nothing.

Dr. Potter. Is there any way of measuring whether the nasal passages are really enlarged when the arch is expanded?

Dr. Foster. At present the rhinologists do not sacrifice mucous membrane. Hence it is important to have the orthodontist do his work first, so as to save mutilation of the mucous membrane.

At present there are no agreed measurements, but it is likely there is a widening of the nose with the widening of the arch. I think some measuring appliance would demonstrate it.

Dr. Ainsworth. It would be interesting if the rhinologist would get statistics as to whether the patients have been breast or bottle babies. I think that bottle babies are the ones most treated.

Dr. Leland. About recurrence. It is chargeable to the same thing which brings about the adenoids in the beginning, that is the carelessness of the mother in early life. A cold stops up the nose. The mother is not careful and the habit is established before three years of age. That is the reason we have the growths.

The Indian mother assured nasal respiration to her child by strapping the child to a board and holding the chin in a proper position. It is impossible to remove all the adenoids; those that are left will grow if the same cause, that is, mouth breathing, is still persisted in. In $3\frac{1}{2}$ to $4\frac{1}{2}\%$ adenoids recur. The parent has a bigger job than the rhinologist who removes the growth. The dog is the only animal who breathes thru his mouth, but he does so because he sweats there. The sprinter who runs from 40 to 60 yards does not breathe at all during the race, but gets his breath first. The man who runs a mile breathes thru his nose.

The man who is talking gets his breath thru his nose because his mouth would get dry otherwise.

Singers who know how to sing get their breath in the pause. The flute player likewise. I say that the man who gets there breathes thru his nose.

Dr. Foster. In the last few years there has been a new method of cutting the defective septum in such a way as to avoid sacrificing any mucous tissue. At the end of three days the nose is in as good condition as ever. I am to operate on the two cases mentioned. In regard to Dr. Fillébrown's statement I would say that the volume of air in mouth breathing passes over the surfaces of the tongue and palate, where there are no glands to

secrete saliva. The surface of the nose is enormously greater than the surface of the mouth.

It has been demonstrated that air taken in thru the mouth is much less moist than if taken through the nose.

A DISCUSSION OF THE DENTRIFICES USED BY OUR PATIENTS.*

BY DR. CHARLES M. DUNNE.

The so-called oxygen producing powders.

For the past six or seven years I have made a hobby of the dentifrice question. I was led to this by the seeming impossibility of securing the intelligent home care which we all know is of vital importance to supplement office treatment. My investigations proved that the fault lay in the dentifrice generally sold and *not* in any lack of effort on the part of my patients. The perfection of a really efficient dentifrice seemed to be a purpose worthy of my best attention, and I do not for a moment regret the time and money spent in accomplishing this purpose. It is the information acquired while working toward this end that I shall share with you to-night.

It was my intention to put before you in one paper, the results of the analysis and the bacteriological work done in connection with the examination of a number of the better known tooth powders, pastes and washes. I have found, however, that the mass of matter is so great that were I to attempt to put it all before you now it would not only require much more of your time than I have any right to monopolize, but it would be impossible even then for me to give you anything more than a summary of the work done.

I will give you the ingredients of six of the best known and most widely advertised dentifrices as disclosed by our analysis.

Number 1 contains:

Chalk	80.14 per cent.
Calcium Di-oxide.....	2.05 per cent.
Sugar	9.54 per cent.
Silica .....	.84 per cent.

*Read before The New York Institute of Stomatology, January 4th, 1907.

Soap	6.10 per cent.
Oil of Wintergreen.....	1.00 per cent.
Total	99.67 per cent.

Number 2 contains:

Silex (Silica)	18.82 per cent.
Chalk	37.64 per cent.
Glycerin	33.91 per cent.
Saccharin .....	.25 per cent.
Oil of Peppermint, Geranium, etc	.50 per cent.
Salol	trace
Formaldehyde	trace
Water (by difference).....	8.88 per cent.
	100.00 per cent.

Number 3 contains:

Chalk	66.93 per cent.
Magnesium Carbonate.....	1.83 per cent.
Soap	5.10 per cent.
Sugar	23.14 per cent.
Sodium Salicylate.....	.50 per cent.
Oil of Wintergreen.....	.50 per cent.
Water	1.72 per cent.
	99.72 per cent.

Number 4 contains:

Alcohol	34.10 per cent.
Soap	6.47 per cent.
Glycerine	6.87 per cent.
Sugar	18.10 per cent.
Oil of Peppermint.....	
Oil of Wintergreen.....	1.49 per cent.
Water (by difference).....	32.97 per cent.
	100.00 per cent.

Number 5 contains:

Water (by difference).....	38.32 per cent.
Alcohol	41.40 per cent.
Glycerin	5.62 per cent.
Soap	4.19 per cent.
Sugar	10.00 per cent.
Oil of Cinnamon.....	
Oil of Peppermint.....	
Oil of Wintergreen.....	.47 per cent.
	100.00 per cent.

Number 6 contains:

Chalk	83.96 per cent.
Soap	4.51 per cent.
Sugar	8.26 per cent.
Salicylic Acid.....	.50 per cent.
Oil of Wintergreen.....	1.44 per cent.
Water .....	.80 per cent.

Total99.47 per cent.

As there are some important details which I wish to bring out, I have decided to divide the discussion of these dentifrices into several papers, and to-night I shall take up Number 1, the most novel and interesting preparation of its class, the so-called oxygen yielding powders.

I say "so-called" because this class is at present confined as far as I know to one single preparation, and the claims of this preparation to the name "oxygen-yielding" proves, upon investigation, to be entirely unfounded. From this you will understand that the general tone of this paper must necessarily be *destructive* rather than *constructive*; but I hope it will at least be *instructive*.

Before taking up the merits of this peculiar preparation it will be well to touch upon Hydrogen Di-oxide and allied compounds; the conditions by which they are formed, and the conditions under which they yield free oxygen, to which they owe their efficiency.

Although Hydrogen Di-oxide was discovered by Thenard in 1818, until comparatively recently it has remained a chemical curiosity. It was during the last quarter of the last century that, following its successful manufacture on a commercial scale, it became widely advertised and used, first as a bleaching agent and then as an antiseptic. Both of these uses find application in dentistry; the former in the bleaching of discolored teeth and the latter in the disinfection of the oral cavity.

A word regarding the *selective action* of Hydrogen Di-oxide. The most highly complex molecular structures are the least stable, that is, the more easily broken down. An oxidizing agent disintegrates most readily the highly complicated structures, such as organic coloring matters and albumins. As you all know, the structure of bacteria is highly albuminous, which

accounts for the bleaching and antiseptic properties of Hydrogen Di-oxide. In the solution in which we use it, Hydrogen Di-oxide cannot injure the less complex and more stable molecules of the healthy tissues, but readily attacks the more complicated structure of bacteria. An equal selective power is possessed by no other caustic.

Now, as to the place occupied by Hydrogen Di-oxide among the antiseptics. Antiseptics may be divided into two classes. One class kills bacteria by interfering with the chemical process vital to their existence, that is, by coagulating their albuminous constituents or in other ways. (In this class the antiseptic is not destroyed itself, but acts by its mere presence, often in minute quantities. Corrosive sublimate, carbolic acid and other aromatics are examples of this class.) The other class, which might be called destructive antiseptics, actually destroys the bacteria, also the albuminous matter on which they feed; *and are themselves destroyed in the process*. Antiseptics of this second class are usually oxidizing agents, such as potassium permanganate, silver nitrate, and Hydrogen Di-oxide.

Thus, though Hydrogen Di-oxide possesses certain advantages it has the great fault of its class in that it is *only temporary* in its action. In fact, it possesses this fault to an even higher degree than any other of its own class.

Right here I shall deviate from my present line of thought and touch upon the formation of Hydrogen Di-oxide and of Calcium Di-oxide, dwelling most fully upon the latter.

Water, as we all know, is the normal oxide of hydrogen, Hydrogen Mon-oxide (H_2O). It will take up another atom of oxygen, by direct means, with the *greatest difficulty* or *not at all*. Ozone, an allotropic form of oxygen containing three atoms to the molecule instead of the normal two, is said to yield Hydrogen Di-oxide in the presence of water; but even this is doubtful. It is necessary then to introduce the extra oxygen into the water molecule by *indirect means*. The oxygen in its nascent state must come in contact with the water, that is, *at the moment of its formation* and before its atoms have combined in pairs to form molecules.

Oxygen is derived commercially from Barium Di-oxide. Barium oxide has the property, when heated to redness, of absorbing an extra atom of oxygen from the air, thus forming the

di-oxide. It will yield up this extra atom as free oxygen, when heated to a still higher temperature. In contact with water and with the reaction of an *acid*, the Barium Di-oxide will yield its extra atom of oxygen to the water, forming Hydrogen Di-oxide, thus acting as a carrier of oxygen from the air to the water and doing for the water the office which, as stated above, it cannot do for itself.

The acid selected for this re-action is usually Hydro-fluoric, as it produces the insoluble Barium fluoride, which readily precipitates, leaving the Hydrogen Di-oxide solution practically pure. Carbonic acid is also used, instead of Hydrofluoric acid, carbon di-oxide being passed through water in which barium di-oxide is suspended. If to the solution formed in this way Calcium Hydrate (common ordinary slacked lime) be added, Hydrated Calcium Di-oxide ($\text{CaO} \cdot 2.8\text{H}_2\text{O}$) will be precipitated. This body, when heated moderately, is converted into Calcium Di-oxide. It is of this particular compound, Calcium Di-oxide, that I wish to speak tonight.

The solid Hydrogen Di-oxide yielding preparations may be divided into two classes. Those, such as Barium and Calcium Di-oxide, in which the oxygen is liberated by the addition of hydrofluoric or carbonic acid; and these reacting merely with the addition of water, such as sodium di-oxide and its derivatives, the so-called per-borates and per-carbonates or potassium, sodium and magnesium. The sodium di-oxides and derivatives might be used very advantageously in a tooth powder, providing patents had not been secured covering their use and enjoining it from others.

A chemical analysis of one composition gives the following:

Chalk	80.14	per cent.
Calcium Di-oxide	2.05	" "
Sugar	9.54	" "
Silica .....	.84	" "
Soap	6.10	" "
Oil of Wintergreen.....	1.00	" "
Total	99.67	" "

We have here as the only compound capable of yielding Hydrogen Di-oxide, or oxygen, the Calcium Di-oxide. This, as I have previously stated and shall subsequently prove by experi-

ments if time permits, does indeed yield hydrogen di-oxide *upon the addition of an acid, but it does not yield any perceptible traces of Hydrogen Di-oxide upon the addition of water.* Furthermore, Calcium Di-oxide in the mixture in which it is contained in the formula just quoted, *does not yield hydrogen di-oxide even by the addition of an acid in any proportions in which acids are found in the mouth.*

A word regarding these acids of the mouth. The vital processes upon which bacteria in common with all living organisms depend are essentially chemical and they are no less complicated and no more understood in the case of the mono-cellular bacillus than in the case of man himself. The living cell absorbs nutriment from its surrounding environment and converts it partly into the tissue of its own body, partly into the necessary juices and partly into products which it excreats and which sometimes serve a useful purpose in converting surrounding food into soluble and readily assimilable forms and sometimes have no known purpose and may be regarded as by-products or waste substances.

Where these waste products are free from disagreeable properties this chemical action is called fermentation, of which the acetic and lactic acid fermentations are examples. Where these waste products are noxious the substance is said to putrify.

As a rule the decomposition of vegetable matter, such as carbohydrates, which are non-nitrogenous, results in the formation of products of an acid reaction. The putrefaction of animal matter, composed as it is of highly nitrogenous compounds, results in the formation largely of bad smelling, substituted ammonia compounds of alkaline reaction, such as amines and amides.

Both kinds of decomposition occur in the human mouth. When the food of the person is largely of an animal nature the reaction around the decomposing particles is alkaline and without action on the tooth structure. When the food of the individual is largely vegetable and non-nitrogenous, the products of the decomposition are acid. To the solvent power of the acids produced in this way, experiments show conclusively we can justly lay the disintegration of the calcium phosphate carbonate composing the mineral portion of the tooth structure, which makes possible the subsequent bacteriological decomposition of the organic contents of the dentinal tubules.

The only acid fermentation which has been positively proved

to take place in the human mouth is the lactic acid fermentation brought about most frequently by the bacillus acidi lactici of Hueppe and rarely by several others. Putyric acid is frequently said to be present, but Miller could find only traces which are produced, together with minute quantities of several other organic acids in by-products in the lactic acid fermentation. For practical purposes it is with lactic acid alone that we have to deal in fighting tooth decay by means of anti-acid.

Regarding the quantity of lactic acid that can possibly develop in the mouth by the fermentation of food particles, Miller has made some interesting experiments. He found that amylaceous food, such as bread, fermented the most readily, more, in fact, than sugar, which acquired an unearned reputation for causing dental troubles. The development proceeded until the liquid contained .75 per cent. of lactic acid, when fermentation ceased in all cases.

In the oral cavity, where the saliva washes freely over the exposed parts, the development of acid could hardly proceed to this extent, but in a cavity containing, for instance, a crumb of bread, it is quite possible that the maximum quantity is formed. In studying the action of the acids of the mouth upon a hydrogen di-oxide yielding compound we shall use, therefore, a .75 per cent. solution of lactic acid in distilled water. I have some here which I shall use in my experiments.

Let us inquire into the action of water and of this solution of lactic acid upon pure calcium di-oxide. The only way in which calcium di-oxide could possibly split up in contact with water would be by the reaction $\text{CaO}_2 + 2\text{H}_2\text{O} \rightarrow \text{Ca}(\text{OH})_2 + \text{H}_2\text{O}_2$; in other words, we have as a result lime and hydrogen di-oxide. But as I have previously stated, lime when added to a solution of hydrogen di-oxide takes away the extra atom of oxygen in the hydrogen di-oxide, leaving water and precipitating hydrated calcium di-oxide. In other words, the extra atom of oxygen has a greater affinity for the lime than it has for the water. The water will take up this extra atom only when it is forced upon it. It is so forced by an acid, lactic acid, for instance. The reaction in this case is as follows: $2\text{C}_2\text{H}_4\text{OHCOOH} + \text{CaO}_2 \rightarrow 2(\text{C}_2\text{H}_4\text{OHCOO})_2\text{Ca} + \text{H}_2\text{O}_2$. The molecular weight of lactic acid is 90, that of hydrogen di-oxide is 24. As two molecules of lactic acid are required to produce one of hydrogen di-oxide it

is evident that 180 grams of lactic acid will yield 34 grams of hydrogen di-oxide or 16 grams of available oxygen.

Let us assume that the quantity of saliva in the mouth at one time is five cubic centimeters and that this quantity has fermented in contact with food until the maximum quantity, .75 per cent. of lactic acid is produced. There will then be present in the 5 C. C. of saliva 37.5 milligrams of lactic acid. This, by calculation, will be found to yield, in contact with pure calcium di-oxide, 7.08 mg. of hydrogen di-oxide; equivalent in the 5 C. C. assumed to be present to a .14 per cent. solution, about 1 per cent. or one twenty-first as strong as the ordinary 3 per cent. solution of commerce.

These figures would be obtained in practice if we used pure calcium di-oxide, but the tooth powder we are discussing contains only 2 per cent. of calcium di-oxide; the remainder is essentially chalk and soap. Both these ingredients would also react with the lactic acid, neutralizing it and thus destroying its power to liberate hydrogen di-oxide. As one gram (15.43 grains) of this powder will neutralize 1.238 grams of lactic acid, it is readily seen that in practice the chalk is in great excess. If we assume, however, that the calcium di-oxide in the powder does react with its share or about 2-90 of the total lactic acid we would have in the 5 C. C. of saliva .15 mg. of hydrogen di-oxide equivalent to a .003 per cent. solution; and even if we assume that the carbon di-oxide liberated from the chalk liberates in turn even two or three times this quantity of hydrogen di-oxide we would still have a solution much too weak to have any perceptible antiseptic properties. The three thousandths of 1 per cent. would be instantly destroyed by the mucous of the saliva alone and certainly would not reach the bacteris present in the dentinal turbules of a decaying tooth.

If we had a .003 per cent. solution of corrosive sublimate, the most powerful and permanent of all antiseptics, we would consider it weak. But a .003 per cent. solution of hydrogen di-oxide, the most evanescent of antiseptics, is of little more value than pure water.

I admit that this tooth powder does all that most powders do, that is, to neutralize the acidity of the mouth and thus remove a condition necessary both to the commencement and continuance of dental caries. But when its manufacturers come out so boldly proclaiming the discovery of an entirely new prin-

ciple in the making of tooth powders, I think it is time to determine just how much truth there is in these extravagant statements.

I am a firm believer in a good dentifrice and do not wish to reject as impracticable the theory of a dentifrice that will act as an antiseptic in the mouth. But the dental profession owes to its patients the time and consideration necessary to find out the *truth* about such a dentifrice.

There is not a dentist here to-night who would use a poor amalgam in the place of a good one, or who is not willing to take the trouble to investigate a chemical phenomena. We certainly owe to our patients equal care in the selection of a dentifrice for their daily use.

THE RELATION OF COMMERCE AND TRADE JOURNALS TO DENTISTRY.*

BY DR. J. LEDYARD SMITH.

With the growth of the profession, there has developed most naturally, its trade-industry with an importance that makes the dentist of to-day more dependent upon the commerce of dentistry, than the people are dependent upon dentists. Persons can and do go through life without any aid from dentists; perhaps to their loss, which, however, is another matter. But no dentist of to-day can exist free of the aid of dentistry's commercial side. As the profession has grown, so has its commercial industry, and without the one the other could not exist.

Dentistry is more than a profession of surgeons, practicing only surgery. It embraces mechanics and, one may say, all the arts, and to practice and support any branch in the field a dentist must of necessity use the output of the trade.

This industry is not supported by a few, or a part of those who practice, but by the entire profession the world over. Its foundation is money. Its support, therefore, has no territorial boundary, the products of invention and manufacture being carried to the limits of postal service. The purchasing power of this entire body of professional men is enormous. For instance, one item, quoted from a report of mine products and their disposition, was that, in 1905, fifteen millions of gold went into the

*Read The before New York Institute of Stomatology, January 4th, 1907.

channels of dentistry. The profession, in its growth as a profession, has created a vast industry. And each side, the professional and the commercial, have become absolutely dependent one upon the other.

Commercial dentistry, by its very importance, has assumed the place of a strong and growing factor in dental education, spreading its manifold and ever increasing benefits, from the exit of the college graduating room to the limits of any remote dental activity.

The direct advantage of all society educational work is limited to centers of dental congregation. Advertising may be called, by an enthusiast, an art, whereas it is a business employing art, cunning, and a rare ability to promote a sale of an article. Commercial dentistry, through the medium of advertising, has become a strong factor in educating every practicing dentist in many channels, where, without this medium, every one of us would be deficient in the knowledge of things of the utmost importance to any man who has the ambition to keep alive to the progress being made in dentistry to date. No disinterested endeavor, having for its aim only sentiment or some idealism, can ever compete with commercialism in spreading this knowledge. Commercialism is the vehicle of progress. Progress is success in motion, brought down to date. The goal is money. The impetus is the grasp for that goal. Sentiment can compete with any utilitarian movement only when it lends itself to the tricks and methods of commerce.

A dentist who neglects the tact and finesse of business, pure and simple, will be a failure to himself and will confer to the public only a moiety of his talents. Success will only come from a life of devotion to legitimate business methods.

Because the star of trade industry is money lessens, in no degree whatever, its benefits, which are mighty, far reaching, and ever increasing. It may be thought that the rounding out and completion of one's education after leaving college falls to the post graduate work of dental societies, whereas not only is such work limited in direct teaching to a few, but it is only collaborative with the educational advantages spread by commercial dentistry, which, with the persistent force of trade, enters every dental office in the world, every up-to-date method and technical point that can be in any way of service to the

practitioner. Every trade has its journal. Were there no demand for dental trade journals they would naturally stop. The demand, however, is sufficient to maintain several on a profitable basis.

The motive for their existence may be business—money. With that motive in view they have been conducted with the closest steering to those lines, with the logical result of success. Waver that motive and failure would follow. For years the trade journals have been conducting a constant post-graduate course. There is no estimating the vast volume of absolute and lasting service conveyed to humanity through these trade journals, conveying and teaching practical helps and disseminating thoughts and ideas to every dentist who has not been blind to his own interest by withholding subscription. Any knowledge thus gained has a money value to that dentist and in turn his public receive its benefit.

The efforts thus put out by journals and started with no higher motive than to reach the star of money are developed into waves of profit that offset the entire sea of humanity.

Nothing may escape criticism; nor any motive, censure, since any criticism or censure may be started from a limited understanding, or from selfish purposes or what else. Many a person with a toothache has condemned the growth of evolution that has made the mouth of humanity different from that of the chicken.

The Irishman criticised severely the presence of the sun. "Sure, anyone can see in the day; why don't the sun shine at night, when it's dark and we want light?"

From various reasons, criticism woven in wrath has time and again been flung at the trade journals. In many instances the criticism has been actuated by a motive no different from that which has governed the policy of the journal under fire. It is most excellent judgment that can look down the line and keep clear the road of any obstacle that may tend to check the progress of a commercial house. The journal of that house conducted on a policy less observing, would mean ruin to itself and the house it represented. Only praise can be passed upon the judgment and policy that builds that success.

One never sees an unoccupied building without noticing that its windows have proven too much of a temptation to the

small boy with a true aim. He forms that habit of plugging at things and, later in life, his habit leads him to hurl stones at houses even inhabited. His own, however crystal, will be safe, since his efforts will be in a direction away from his own doorstep, unless there should be a recoil from too strenuous effort. That often happens.

The inmates of the house of dentistry have for years been hurling stones at the trade palace across the street. The street being wide, little damage has followed. But the slings have kept up with increasing strength with much recoil and damage at the base. The house of dentistry finds itself in much wreck-age and disorder, with its members all at combat. The roof is supported by sham creeds, pillars of jealousy, beams of rotten politics and decayed props of ethics that are exerting all their remaining fibres of strength, and are being jostled by the elbows of indignants and malcontents.

The noisome odors arising from the moral atmosphere of dentistry are neither started nor carried along by its unassociated faction—that 60 per cent. of men who work and live by themselves disunited with all society work.

In the meantime, the house across the street, through order, discipline and a keen judgment of business methods, finds itself in a footing that age has strengthened. More than that. It has cemented itself with a community of similar interests with one policy, and instead of standing alone, that house forms part of the structure of trade industry.

The "Need of An Independent Journal In Dentistry" will remain a matter of opinion until a demand makes the idea a fact. That there is a desire on the part of a few for such, yes. That such a journal can be made any broader, more enlightening, any cleaner or more in demand than the present trade journals, is a matter of trial. Neither benefit nor success can follow such an undertaking, if conducted on a plan any less observing to every detail of business than any trade journal now employs. To exist, the spirit of trade and commerce must enfuse and govern its life.

It can be of value to even a few with its first issue; but no broad benefit can follow until it may prove itself a commercial success.

The New York Institute of Stomatology.

A regular meeting of the Institute was held at the Chelsea, 222 West Twenty-third Street, New York City, Friday evening, January 4th, 1907. The president, Dr. S. E. Davenport, presiding.

The minutes of the last meeting were read and approved.

The President: At a recent meeting, Dr. Henry W. Gillett was appointed a committee to prepare a minute upon the life and work of the late Dr. Dwight M. Clapp, a valued member. Will Dr. Gillett favor us now?

Mr. President and Fellow Members of The New York Institute of Stomatology.

It is with sadness and a sense of personal bereavement, which I am sure is present in the minds of all of you who knew him, that I rise to present the minute you have asked me to prepare concerning the life of our loved and honored brother member, Dwight M. Clapp, Doctor of Dental Medicine.

Dr. Clapp was born in Southampton, Massachusetts, June 5th, 1846. He died at his summer home in Lynn, Mass., September 18th, 1906, after a lingering and painful illness from a form of heart trouble, for which overwork is the cause assigned. His early education was secured in the public schools of his native town, followed by a course of study in Westfield Academy. His professional education was begun with Dr. H. M. Miller, of Westfield, and continued with Dr. James Lewis, of Burlington, Vt. At the age of twenty-three he went to London and spent a year in association with Dr. Charles R. Coffin, following this with a period in the office of Dr. Mason, of Geneva.

He then began practicing in Boston, Mass., where he continued during his lifetime, interrupting his professional work to take the course at the Harvard Dental School, receiving its degree of doctor of dental medicine in 1882.

His professional activities have been many. In the field of dental education he occupied for a year the post of Instructor in Operative Dentistry in the instruction corps of his Alma Mater, and from 1890 to his death he was one of her clinical lecturers and since 1899 a member of the Administration Board.

In these positions he labored most effectively and rendered

valuable aid both to the institution and to the students who came under his instruction. Allied to his work, but more arduous and more thankless, is the ten years of service he gave to the State Board of Registration in Dentistry. In this, as in all other lines, his work was characterized by faithful and effective service.

The standard of the dental profession in the Bay State is higher than it would otherwise be because Dr. Clapp was willing to sacrifice himself to further the interests of the profession he loved.

His contributions to dental literature were frequent and valuable. One of the most important is the chapter on "Combination Fillings," in the American Text Book of Operative Dentistry. Dr. Clapp's work on this particular subject had wide influence in the profession. He frequently contributed to our periodical literature, and was a notable factor in the early demonstrations of the value of the X-Ray in our professional work. He took up the study of its practical application to our needs very soon after its discovery and quickly made himself what he remained to the day of his fatal illness—the authority for New England on dental skiagraphy.

Dr. Clapp's standing with his professional brethren is in some degree indexed by the fact that he was an ex-president of the Harvard Dental Alumni Association, the Massachusetts Dental Society and the Harvard Odontological Society, this latter being his chosen field of work—and by his membership in the Boston Dental Improvement Society, the American Academy of Dental Science, the National Dental Association, the Northeastern Dental Association, and The New York Institute of Stomatology. Dr. Clapp's energies and sympathies flowed out in other channels than those strictly professional. His love of nature and of literature was known to some of you, and through association with the University Club of Boston, the Oxford Club of Lynn, the Appalachian Club, and notably the Boston Art Club, he kept in touch with a wide circle of congenial friends and companies, and brightened and broadened his life and widened the scope of his influence for good in the world.

Dr. Clapp married, in May, 1872, Miss Josephine Simonds, of Lynn, Mass., who survives him. Of the two children result-

ing from this union a daughter died when six years of age and a son, Dr. Howard Clapp, survives to lend aid and comfort to his bereaved mother, as she strives to gather again the broken threads of life and to continue alone on the path she has been wont to tread in loving companionship.

In order to grasp the full significance of Dr. Clapp's life and work it is needful to take account of his personality, of the gentle and kindly spirit that animated all his deeds and endeared him alike to patients, associates and in particular to students, in whom he took such an active interest and with whom he has been in so many instances a vital factor in determining their occupancy of a higher plane of professional life. Few men in our profession have been better loved by their patients and colleagues, and never was he found wanting in those personal attributes which command respect in any calling or station in life.

Dr. Gillett: I recommend that the report be put upon the minutes of the Society and a copy sent to Dr. Clapp's family.

The motion was carried unanimously.

The President: I wish to advise you of a union meeting, to be held in Boston, of the American Academy, the Harvard Odontological, the Metropolitan District and The New York Institute of Stomatology. The members of the Boston societies have asked the members of the Institute to be the guests at dinner at Young's Hotel at 7 o'clock the evening of January 25.

Our first essay this evening is upon a very important subject, and one to which too little attention is given. We are fortunate in having with us a gentleman who has a distinct leaning toward personal investigation. The subject of the paper is "The Discussion of Dentifrices Used By Our Patients." I take pleasure in introducing to you Dr. Charles M. Dunne, of Norwich, N. Y.

(For Dr. Dunne's paper see page 28.)

The President: The discussion of Dr. Dunne's valuable paper is now in order. I shall first call upon an old friend of all of us, a gentleman who has been many times before this body, and has never appeared without serving us—Prof. A. A. Breneman, Chemist, and President of the New York Section of The American Chemical Society.

Professor Breneman: Although as a chemist engaged in

general chemical practice and expert work in New York City, I have had my attention called to a variety of chemical subjects, I have never been consulted upon the matter of dentifrices. I think, however, that I understand the three principle requisites of a good dentifrice. There should be, first, an ingredient more or less abrasive for mechanically removing deposited or encrusting matter about the teeth; second, an alkaline substance to neutralize acids which may occur in the mouth; and, third, an antiseptic material which will be better still if it is also a disinfectant and deodorant. I suppose, so far as antiseptics are concerned, that we are somewhat limited by the poisonous or unwholesome character of many such agents. I think it may be going a little too far to say, as has been remarked here, that oxygen set free from combination, that is, in the condition which chemists call nascent or active oxygen, quickly or entirely destroys all organic matter. It does act, especially, to destroy the life of living organisms, but freshly killed organisms have probably a greater power of resisting such chemical action than organic matter which has already begun to decompose. Also as the researches of Loeb and others have recently shown, it is unsafe to attempt at the present time to draw very sharp distinctions between living and not-living matter.

When a substance like calcium peroxide is decomposed the effect of the oxygen set free will depend also upon the rate at which it is given off. Unless the oxygen can act upon organic matters as rapidly as it is given off some of the oxygen passes away and the substance is by so much less effective. Undoubtedly, however, there are conditions under which some of the calcium peroxide could act as a disinfectant when used in a dentifrice. As to sodium peroxide, which has also been mentioned in this discussion, it is a valuable oxidizing agent, but I should think that its use must be very limited in dentistry because the product of the action of water upon it is caustic soda, a highly soluble and corrosive substance.

Dr. H. L. Wheeler: Dr. Dunne, did you arrive at your knowledge by analysis?

Dr. Dunne: I did.

Dr. Wheeler: Because I have in my hand two patents taken out for Calox, which cover such a wide sphere that the manufacturer could put it out, and it would be possible to sell

it without competition of any kind and with no certainty of what it contained. The first patent that I have is dated May 17, 1904, and is granted to Dr. Edward C. Kirk.

Not satisfied with that patent they then made claim to every substance that would give out oxygen. The second patent has been taken out in the name of a gentleman to whom an interest in the first had been assigned. This patent was taken out on October 17, 1905. The idea of these patents is to give one man or set of men the right to control all the products that give out oxygen. Now, having taken out patents there have apparently been no steps taken to manufacture a dentifrice with the more useful ingredients secured under the second patent. Having control of the situation, they evidently propose to make a cheaper substance and sell it to us, and forbid any one else to make a better one. This is of interest, because there is a letter to be read later from a gentleman, bearing upon the point of the service this gentleman, who has put us in this position, has rendered the profession. The kind of service he has rendered is here shown forth.

The first patent, No. 760397, is granted to Edward C. Kirk and claims for the composition powder dentifrice a powder that has antiseptic, germicidal and detergent qualities. That by the use of calcium dioxide this substance upon coming in contact with fermenting food particles between the teeth the locally formed acid reacts with the calcium dioxide and hydrogen dioxide is formed, the claim being practically 2 per cent. of calcium dioxide is used with 95 per cent. of precipitated chalk and 3 per cent. powdered castile soap, together with flavoring and coloring.

The second patent, No. 8002099, is granted to E. H. Cane, who is one of those to whom Dr. Kirk assigned an interest in the first patent. The object of this patent, as stated by the inventor, is to produce a dentifrice composition of powder form, having as an ingredient which in the presence of water as distinguished from acids will be transformed into hydrogen dioxide. The invention, as described, is exceedingly vague. The ingredients claimed are percarbonates and perborates of alkali and alkaline earth metals which, when brought in contact with moisture, undergo decomposition, resulting in the formation of hydrogen di-oxide.

There are named the percarbonates of ammonium, sodium, potassium, calcium or magnesium, which may be used with great success. To make sure that all future discoveries shall be anticipated to the profit of the patentees there is added to these substances the statement that "by the employment of either such expressions the same is intended to include those equivalent substances *and is not limited* to the specific material stated in the claims.

It would seem that so far as the patentees could find or devise the means they have attempted to make it impossible for any other to produce a powder dentifrice that will give off oxygen or hydrogen-dioxide.

This, I believe, can be overcome by simply prescribing these ingredients, if one wished to use such a powder, and having it put up by the pharmacist under a prescription. I believe this is permissible even though the ingredients are patented.

The prescription described in the second patent is 96 per cent. precipitated chalk, 3 per cent. powdered castile soap, 1 per cent. of percarbonate or perborate, with suitable coloring and flavoring as preferred. From the formula read here to-night these proportions are apparently not followed.

Dr. Arthur H. Merritt: I have been much interested in what Dr. Dunne has said to us, and I feel that he deserves great credit for his investigations along these lines. To me it has always seemed to be a little inconsistent to place so much emphasis upon oral prophylaxis as it is practiced in our offices, and at the same time to be so indifferent to the nature of the dentifrices employed, by our patients to supplement and carry out that treatment, especially so when we consider how dependent we are for success upon their co-operation. I know that in my own work along this line I have felt in certain sense handicapped in not being able to prescribe for my patients something which I felt would aid me in the maintenance of oral hygiene.

Whether a dentifrice can be made which will exercise an antiseptic influence when used in the mouth, and coincidentally an alkaline and abrasive action which will aid in the cleansing of the mouth and teeth, and whether if such a dentifrice could be compounded it would have any appreciable effect in the prevention of those destructive processes which go on in the mouth, if used in the way dentifrices are generally used by our patients,

I do not know. These are problems which I am sure every one here would be glad to have solved and if Dr. Dunne can enlighten us on this subject he will have placed us under further obligations to him.

A word about Calox. When this preparation was placed upon the market, and after a study of the statement made by the manufacturers, through their representatives at a meeting in the Academy of Medicine, and published in the Cosmos for October, 1904, I felt that a decided advance had been made in this direction and I began prescribing it in my practice.

Subsequently finding it advertised in the current magazines side by side with similar preparations generally regarded as nostrums, I made a protest on two different occasions to the representative of McKesson and Robbins, saying that I felt that they owed it to the dental profession to treat their product in an ethical manner, especially so as they expected the profession to endorse it. That if they had an article which was, as they claimed, superior to those already in use, the profession would be glad to avail themselves of it. I further expressed surprise that a house such as I had been led to believe McKesson & Robbins to be should be willing to resort to such methods to advance the sale of Calox. On both occasions the reply was the same. "That with similar preparations employed by the medical profession they were advertised only to the profession, for to do otherwise would injure their sale, but that with the dental profession it was quite another thing, as dentists were indifferent in such matters."

In other words, it was their purpose to allow commercialism to have its riotous way when unrestrained by professional disapproval. I replied, "that there were dentists who strongly disapproved of such methods, and who would refuse to prescribe it or any other article prepared by them so long as the manufacturers were willing to disregard the professional ethics involved in such advertising." Furthermore, "that I should avail myself of the first opportunity which was presented to bring the matter before the dental societies that an organized protest might be made against such disregard."

I say to you, in all earnestness, that these things ought not to be. That just so long as the dental profession is willing to entrust the preparation and sale of these and similar products to

those whose sole motive is personal gain, and take their nostrums as they are handed out, without question or investigation, just so long may we expect to have a repetition of the pitiful sordidness which has been exhibited here to-night.

I know of no worthier problem which this society could interest itself in than the one which has been presented. If a dentifrice can be prepared which will inhibit caries of the teeth and exercise a beneficent influence upon the general health of the mouth, then it is time that such a dentifrice was made available, and I think you will agree with me, after what we have listened to, that if every one is to enjoy the benefits of such a preparation it will be because we have put our own hands to the plow and refused to prostrate ourselves before the "mamman of unrighteousness."

Dr. W. St. George Elliott: This is to us, of course, a subject of very great interest and long ago I came to the conclusion that we never should prescribe a dentifrice that we do not know about. More than that, we ought always to prescribe individually for each patient the kind of powder and the kind of brush required. Now, this is going back to old times. Thirty years ago dentists sold tooth powder and tooth brushes. The proper thing now is to go to the drug store. I concluded that this was neither just to the patients nor to the dentists. A doctor might as well prescribe one medicine as a dentist one dentifrice. Some patients use a brush to excess; some patients do not use a brush at all. I have made it a rule to compound three grades of tooth powder, all antiseptic in character. Grade "A" is made of pure chalk and antiseptics; "B" contains 10 per cent. of pumice, and grade "C" contains 25 per cent. of pumice. Some believe that cleansing the teeth with a rough tooth powder is injurious to the enamel. I do not believe it. I have seen cases where it looked like it, but on inquiry and analysis I have found that it was not so.

At a clinic given recently by Dr. D. D. Smith, which I attended, I asked him the question: "Have you ever seen a patient whose gums have been injured by over brushing or by the use of a hard brush, or tooth powder?" He said that on the contrary these were just the materials to improve the teeth.

I have my brushes made to order in Paris. They are practically straight, similar to Dr. Smith's, and I supply my patients

with powder at a nominal cost. I frequently change the powder. If a man takes but little care of his teeth I give him an extra stiff brush, and tell him to brush his teeth five times a day. Instead of injuries consequences the results are remarkable in the matter of preservation, cleanliness, lack of decay and the bright appearance of the enamel. Dr. Smith advises his patients to come back once a month, when he spends about half an hour examining the teeth and cleaning them with stick and pumice.

Dr. E. Howard Babcock: I consider this subject of very great importance to the profession and to the patients. What little work I have done in this line is very simple. I have treated the subject from two standpoints. First, how much injury can be done to the teeth with too much abrasion; the other through the action of acids. When I find a powder with no reaction under the microscope, and no abrasion on a hard surface, like glass, I consider it a pretty good powder for my patients, but I have not had the time nor the special training for this line of work.

Dr. Gillett: The manufacturers of the oxygenated tooth powders have stated that the irritation of the mucous membrane following their use was due to the activity of the oxygen liberated. Seemingly, Dr. Dunne would disagree, and I would like to ask if he has any other explanation for the irritation which many experience when first using a tooth powder containing dioxid of calcium.

The clean, white appearance of tooth brushes used with "oxygenated" tooth powder seems suggestive of more bleaching power than Dr. Dunne's report accounts for.

Dr. Dunne: First I would like to answer the questions asked me. I have used Calox, and all of the better advertised preparations on the market; have recommended them to my patients, whom I have had come back once a week or a month to see if I could note any changes. Now, I have never noticed anything injurious, except the presence of silicon in Calox. Silicon is, of course, irritating, but I doubt if it is enough to cause inflammation of the gum margins.

I would like to make clear two points in my paper. Prof. Breneman spoke about the living matter and the selective properties of hydrogen dioxide. I should like to read from my paper to make sure I did not make a statement that was not true.

"That oxygen developed from hydrogen dioxide attacked dead matter," but I simply said that oxygen attacks the organisms of higher morecular structures. It attacks these more readily than it attacks healthy tissues.

I also admit in my paper that a slight amount of oxygen might be involved from calcium dioxide and water, but the amount is too infinitesimal to be of any value used as an antiseptic in a dentifrice with a 2 per cent. solution. While I have watched dentifrices ever since I began to study, I have never seen a patient the enamel of whose teeth seemed to me to be affected by the use of any tooth powder, wash or paste, but I do believe that I have seen a recession of the gum margin due to excessive use of a tooth brush.

I am very much indebted to you for the kindness shown me this evening. I have not tried to tear down any particular structure without helping to upbuild. I believe it is possible to have a good dentifrice. I also believe that we ought to pay more attention to the needs of our patients and see to it that they use a proper dentifrice during the three or six months they are away from our offices. In the five formulas here there is nothing of any value, not even an antiseptic, except perhaps 0.2 of 1 per cent. of oil of wintergreen. I do not mean to say that antiseptics can be made so decidedly favorable, but I think they can be made so that they will give us better results than any now on the market.

The President: As is well understood, the Institute stands for professional journals, independent of the supply-house backing, and it has taken this position ever since its organization. During the last year, associated with three societies in Boston, the Institute has established a journal at considerable expenditure of time, hard work and money, which, I believe, proves our sincerity. We mean to be broad and liberal, and while criticising the so-called trade journals for a lack of liberality in certain directions, we open our meetings and the columns of our journal to a gentleman who takes exception with our position, and who believes that trade journals are all that are necessary to represent dentistry. We give him a cordial welcome, and admire him for his courage and sincerity. I introduce Dr. T. Ledyard Smith, who will speak upon the "Relation of Trade Journals with Dentistry."

(For Dr. Smith's paper, see Page 000.)

The President: For the purpose of opening the discussion upon Dr. Smith's paper, I will request the Secretary to read a letter recently received by Dr. Bogue from Dr. Edward C. Kirk, the Editor of The Dental Cosmos. This letter is read by permission of Dr. Kirk.

Dear Dr. Bogue: I hasten to reply to your kind note of January 2d, just received, and to thank you for your hospitable invitation to be your guest at the dinner of the Institute of Stomatology on Friday evening.

For the purely social element of the meeting, it would give me great pleasure to be present, but to take part in a discussion of the question of the evening I must regretfully decline. My position with respect to dental journalism is fairly well defined, even though it be considerably misunderstood, especially by gentlemen holding membership in the Institute of Stomatology. I have since 1891, that is to say, for fifteen years, been editorially directing the course of a journal which is de facto as definitely the exponent of independence in dental journalism as it is possible to produce. Independent in that its editor is endowed with practically autocratic powers to exclude from its pages anything and everything which in his judgment is obstructive to dental progress upon the best professional lines, and free to admit everything conducive to such progress. In this spirit the editorial management of The Dental Cosmos has been carried out in the past, and so it will be conducted for the future.

It is not a commercial journal published in the interest of its Company publisher, but is issued in accordance with the motto on its cover, "in the interests of the profession," with the distinct understanding, however, that its editor is the arbiter of what constitutes the interest of the profession. I am fully aware that there may be much latitude of opinion as to "the interests of the profession," but in the editorial conduct of a dental journal unless and until its editor is clothed with something like autocratic authority to decide upon particular interests, arising under the general question of what are the best interests of the profession, no such thing as independent journalism is possible. If, instead of its editor, a committee, a board of directors, a society or the profession at large is empowered to determine what shall not be published, then independence ceases and editorial subserviency begins.

I have brought hard study and my best and fairest reasoning to bear upon this question for many years, because I love my profession, and loving it, have desired always to make my best efforts and whatever ability I may have tell in their effect by doing the best that I could for dentistry as a profession. Some few know and realize this, but many see it in only a vaulting ambition or the attempt at selfish aggrandizement, with the result that my honesty has been publicly questioned, and I have been branded as a traitor to the cause of professionalism and the creature of a grasping monopoly, that was fattening at the expense of the dental profession. It is useless to discuss the question with men holding such narrow views, and I long ago declined to do so, because, like Ephraim, they are joined to their idols. In the meantime, believing that a practical demonstration is worth more than volumes of oratory or verbal argument, I have continued my policy of concentrating my efforts in producing for the benefit of my colleagues the best dental journal that I can produce, with the resources available to me, with the result that it has succeeded beyond any previous record in its history, succeeded so that even its enemies read it, one even surreptitiously, subscribing for it in the name of the negro who attends his door bell, lest his name should appear on our subscription list. When our enemy wants *The Dental Cosmos* as badly as that, our friends must love and cherish it beyond measure, and it is therefore a success.

I believe in independent dental journalism in every fiber of my being, and, while I have ceased to talk much about it, I am devoting my energies rather consistently to producing a typical example of journalism, which for downright, simon-pure independence is something to ponder over, and possibly a help to a rational definition of what independent dental journalism really is.

Again thanking you for your kind invitation, and wishing you a happy and prosperous New Year, I am, cordially and sincerely yours,

EDWARD C. KIRK.

Dr. William H. Potter: For the sake of argument, I am willing to accept the position of the essayist that the practice of dentistry should be conducted upon strictly business principles, and should have the acquirement of money as its chief and only end. Strict business principles would at once come in conflict with trade journals. It would be clear that those who publish them have a dividend interest. The primary interest is, as the essayist

has stated, the making of money; the secondary interest is to furnish literature to the profession. This secondary interest is contributory to the primary and is really an integral part of it. Now, according to strict business principles, it would be fair to decide that literature published incidentally for the good of the profession, but primarily for the purpose of making money, could not be altogether reliable.

For instance, supposing a manufacturing house makes regulating appliances and also publishes a trade journal; is it likely that such a house will fail in its journal to favor literature advocating its regulating appliances? And is it likely that the same journal will realize the merits of appliances made by a competing house. Business principles would forbid.

I can imagine no more unbusinesslike proceeding than for our profession to entrust its literature to those whose sole object is to make money, and who, if they are human, will in some way or other use professional literature to help the sale of their goods.

What we as strictly business dentists wish to know is: What instruments or appliances are more profitable to us in our practice? What the trade houses conducted on strictly business principles are most interested in is: What instruments or appliances are most profitable to them?

I do not wish to impute unworthy motives to our trade houses, for I believe that they deserve an honorable place in the business world. But I do wish to criticise the business judgment of dentists who think that it is fair to expect that business houses can furnish unbiased literature and conduct their business in a normal way.

Dr. James Truman: "No dentist of to-day can exist free of the aid of dentistry's commercial side." (Italics, where used, not in original.) This is the premise of the essayist and upon this dictum he builds his paper. The author, possibly, has not lived a sufficient number of years to remember the time when dentistry did exist without the commercial aid. Some still active recall the period when every dentist was obliged, to a great extent, to be his own mechanic, the maker of tools; his own metallurgist, refining and preparing gold and silver; his own ceramic worker, preparing porcelain body and enamels for single teeth and sets, in fact, the dentist of that time was absolutely independent of all, save the gold-beater. The supply houses, of the present, had no

existence. That which human ingenuity accomplished in the decade from 1830 to '40, and prior to this, could meet all the difficulties again with, perhaps, a larger dependence on the mechanical trades. As historical dentistry destroys the premise laid down by the essayist, his whole carefully wrought structure tumbles into ruin, but it may be of interest to follow him still further, in his plea for commercialism.

He acknowledges that "the purchasing power of this entire body of professional men is enormous." The trade industry is "assuming a scope beyond enumeration. *Its foundation is money.*" The truth of this is beyond question, and the fact that money rules in the kingdom of trade is well understood, and it is this problem that dentistry, or that portion seeking independence of action, must take into serious consideration.

The essayist further states that "*commercial dentistry has assumed the place of a strong and growing factor in dental education,*" and this is stated deliberately in this the sixth year of the twentieth century. The absurdity of this statement carries with it its own refutation. It is possible that the essayist is so infatuated with his trade associations that he has become convinced that the education which is only worth his while is that which the supply houses have to offer, this being the productive way of enlarging his bank account. He evidently means this, for in his view, "*Commercialism is the vehicle of progress. * * ** The goal is money. *The impetus is the grasp for that goal.. Sentiment can compete with any utilitarian movement only when it lends itself to the TRICKS (mark that word) and methods of commerce.*" It seems as though infatuation for trade and money could not go further, but our essayist fairly revels in this idea, for it is repeated almost *ad nauseam*.

Dental societies, according to this leader of moneyed thought, are "limited in direct teaching to a few * * * * and is only collaborative with the educational advantages spread by commercial dentistry." Think of this, ye men who have labored year by year in association work to advance dentistry to a higher standard of excellence! Your educational efforts have been puny compared with the commercial activities of the supply houses! The essayist is right, however, measured by the standard he has set up. His ideal is Money, and how to acquire this is taught only in the commercial world. If that is dentistry, and its aim

as a profession, then this paper presented here this evening, should be printed in capitals and sent broadcast throughout the world. It is not, however, the dentistry of a profession, but is the voice of Mammon crying aloud from the purlieus of Wall Street, Let us go up and worship the golden calf.

The essayist must have been in trouble as a landlord, without a tenant, for he illustrates his diatribe against modern dentistry by the small boy tempted to throw stones at the unoccupied house to the detriment of window panes. He speaks of a "roof supported by sham creeds." This somewhat startling metaphor may do to illustrate an idea, but we are lost in a metaphoric maze when hearing that the house of dentistry is supported, in addition to sham creeds, by "pillars of jealousy, beams of rotten politics and decayed props of ethics." It is presumed with this remarkable diagnosis the therapeutic remedy will be gold, more gold.

The essayist kindly furnishes the men holding "exalted ideals" with a quiet home, and suggests "we may try passage on a ferry to Utopia, an island without latitude or longitude." The true professional man will gladly accept the invitation and consider it a privilege to be a partaker with Sir Thomas Moore in his dream of an island of perfection, where every one worked and there was no idle class, and principle was the controlling and guiding force. When the professional man starts on this ferry he may look with complacency on the essayist in his yacht, brilliant in golden colors, with its motley company of sordid rich, profligate youths and miserly men and women, starting on their trip down the River of Life, to eventually shoot its rapids and, finally, to be submerged in Lethe—the waters of oblivion.

"Every trade has its journal. Were there no demand for dental trade journals they would naturally stop. The demand, however, is sufficient to maintain several on a profitable basis. The motive for their existence may be business—money." Thanks for this one truth. It has been charged that they existed solely for business—money, but it has been persistently denied, but now our essayist comes forward and frankly acknowledges that this is the sole motive underlying these periodicals. Heretofore we have been told they were devoted to the interests of the dental profession, and some of our confreres have come to believe this. It will, therefore, be something of a shock for these to know that

the periodicals of trade exist for business—money only. Considering that this is the motive, it becomes comparatively easy to understand why they procure the best talent available to occupy the editorial chairs. These journals, according to our essayist, “For years have been conducting a constant post-graduate course.” He does not deem it necessary to add that this course consists of proceedings of Societies paid for when not procurable otherwise.

That an independent journal “can be made any broader, more enlightening, any cleaner or more in demand than the present trade journals, is a matter of trial.” Thus the essayist dismisses the independent dental journal idea. To such a mind argument would be useless. It is stamped with commercialism, and, like the majority of the twenty-five thousand dentists of this country, he is afflicted with moral strabisms, that fails to view things correctly. The dentist who has aspirations for his profession has no quarrel with the so-called trade journals. They possess a certain value and there is no disputing the statement that they have an educational value. The supply houses, with their money surplus, appreciate the fact that, in order to make this educational pill satisfactory and their advertising pages palatable, they must have the best talent the professional market affords to prepare editorial matter. It is no special discredit to certain men that they sell these talents for gold. The family pot must boil and to secure something to put in it money must be forthcoming. The trade journals are one medium for this accumulation. These gentlemen sell their talents with the clear understanding that they lose a certain portion of independence. They vigorously deny this, but if these gifted editors were to use their talents in criticising any article of special value to the house and were to continue this independent practice, a vacancy would soon be apparent in that editorial chair. They can criticise the dental profession to their heart’s content, but not the house or its products.

The absurdity of the statement that the trade journals represent the profession becomes apparent when the case is reversed. Suppose a syndicate of dentists should start a journal ostensibly to support trade interests, how quickly would these interests repudiate the effort, and very properly, for the average dentist has not, or cannot, have any affiliating interest or knowledge of dental

trade, and the work would be an impertinent intrusion upon a foreign domain.

It is discouraging that such a paper could have been written by one who even indirectly belongs to what we call the dental profession. It is true that one not trained in the modern dental college is incapable of feeling the true professional spirit that is developed only through undergraduate days to the broader life of the practitioner. The essayist may be excused for his gross ideas of what constitutes professional life, but he must not expect that these ideas will dominate the thinking men of the dental profession, who will still continue to aim for the true educational spirit that recognizes that money has a value and methods and orderly arrangement of business details are important, but, above all these the professional spirit must predominate, a spirit that leads to Utopia, not by way of a ferry, but by a gradual approach through work ever increasing altruistic sentiments.

Dr. Herbert L. Wheeler: I am at a loss to know how to proceed in the discussion of this paper. The sentiments expressed therein are so astonishing and so out of harmony with what I have believed to be the situation, that it is extremely interesting to observe the peculiarities of the point of view expressed. It appears to me that the Essayist has transposed the position of those forces that are the real cause of progress, and those that are merely coincident. I believe it to be the consensus of opinion of all civilized peoples, of all peoples, with a literary and an organized system of education, that progress is invariably started, that is, it receives its first inception, and receives the moral force which finally causes it to be accepted, from the exertions of those who consider the welfare of humanity, as above and of more importance than their own immediate wants and needs. That is to say, that their desire to see put in operation those principles of living that make for morality and righteousness, and for improvement of the individual as an upright, self-respecting citizen, is of more importance to them than the mere accumulation of material wealth, for material wealth, while it may be used to advantage and is as a whole used for the advancement of humanity, may also be used in such a way as to cause deterioration, even degeneration.

It is true that it is necessary in order to maintain what is considered a successful practice, that the relation of income to ex-

penditure be considered ; that is, the practice may be so administered as to obtain an income and a proper remuneration for honest service rendered which is legitimate and moral, and cannot be questioned. But the professional man who starts out with the avowed policy of serving himself first and Humanity second, reverses the order, and frankly acknowledges that his first motive is the acquiring of gold, and his second or subsidiary motive, is serving the people, he is not a professional man any longer ; he has become a commercial man, and not only a commercial man but a short-sighted commercial man. A commercial man of the mediocre type, for experience, has demonstrated that a man of honesty, integrity and ability in the practice of any profession in a community where there are demands enough, or where there is need of his services, will receive such ready recognition from that community, because of the very fact that he is honest and reliable, that he is certain always to obtain a reasonable and sometimes even an affluent income, whereas, under the same circumstances, the man whose central motive was the accumulation of material wealth, with no regard for the welfare of those whom he pretended to be serving, would most certainly find himself in the unenviable position of being left far behind by his colleague of greater integrity and of higher ideals. It seems almost useless and idle for me to attempt to refute such arguments as these we have listened to. They carry their own refutation with them. For if the commercial instinct was the entire reason for the actions of every man in the practice of dentistry, or in any other branch of the healing art, or in the pulpit, or in the legal profession, what would constitute the difference between the professional man and a business man ? And it needs no words of mine to convince you that there is a difference, and that that difference is recognized by the public at large, whether we as a profession, or some few members of our profession, acknowledge it to be the case or not. How many of our patients, for example, would be willing to employ us as their professional advisers if they felt the necessity of shopping about to see where they could get the lowest prices as they do with their dry goods ? How long would they consider the calling on any man for professional advice if they deemed that he had not some advantages, some knowledge and some morals in the way of serving their interests, regardless of

what his opportunities were to acquire a larger fee for neglecting their interests?

The part of the paper that speaks of the condition of the dental societies seems to me to be a mirror of the point of view of the Essayist, and I invite you to study it carefully. It needs very little that I can say to point out how utterly ridiculous and unwarranted are the conclusions drawn. One is almost tempted to wonder whether this point of view has been developed because of a total and absolute ignorance on the question of what is being done by the various dental organizations, or whether his own experiences in the society or societies that he is best acquainted with are such as to make him believe that it is representative of all other societies. If the first is the case, we must excuse his ignorance on the ground that he means well. If the second is the case, what a commentary on the societies that he is associated with. The language of the paper leaves it not impossible to think that it may have been copied very largely from arguments dealing with entirely different subjects, in which case it would be easy to understand the ridiculous statements therein set forth.

I could weary you with the rehearsal in detail of cases which show the conclusions of the Essayist to be entirely unfounded, as, for instance, the coming of the Pilgrims and the Puritans to this country, the patriotism of our forefathers who fought for freedom in the Revolutionary War, the unselfish attitude of the host of scientific men who have made it possible to have this twentieth century as desirable a time to live in as it is, the hundreds, and I might say thousands of men in professions, even in business, who have sacrificed their personal needs for the welfare of the community, their nation, or humanity at large; but you all know so many cases of this kind that it is unnecessary. And I am thankful to say that my observation leads me to believe that the profession not only does not accept such principles as a working basis, but that it repudiates them, not only the dental societies, but the profession at large who are not members of dental societies. I cannot believe that any but those who have had little or no opportunities to acquire knowledge and to acquire the principles of a profession, would concur in the sentiments expressed in this paper. In fact, it is my belief that these very commercial institutions which it is intended apparently to applaud would repudiate it absolutely as an interpretation of their motives.

Dr. E. A. Bogue: There is but little in the paper to which we should demur. We recognize and appreciate the value of the professional papers published in the trade journals; but we demur when we are told that the trade journals are the independent ones. We are glad that Dr. Kirk believes in independent journalism. We are *sure* that he has produced a good journal, but he and we evidently differ as to what constitutes independence. The relation of commercial and trade journals to dentistry is the relation of supply and demand. The same relation exists in regard to all the other goods the supply houses have for sale.

As great dry goods houses sometimes have "bargain days" when certain goods, perhaps even standard goods, are sold at less than cost as an advertisement, so the dental supply houses keep up an advertising medium, which they sell for less than cost, to advertise their wares.

We as dentists gladly avail ourselves of this bargain, for our advantage, and we approve the wisdom of the supply houses in making those advertisements of theirs as attractive as possible, yes; and as useful as possible, consistently with their own best interests, for then they are read, and oftentimes preserved, a perpetual and ever present advertisement of the house that issues them.

The essayist argues that not only are these supply houses necessary to the practice of dentistry, but that dentists could not exist without them.

We could, and did, exist before they came into being, but when they came we found them so great a convenience that we consent to pay enormous profits to them, rather than to go ourselves or send where most of the goods used by us can be more cheaply procured.

The essayist also argues that the "Profession" needs no independent journal, because the trade journals supply all that is wanted to the isolated country dentist.

Well, if what he calls the "profession" acts from no higher motive than to make money, perhaps he is right; but in that case he should call it a trade.

The best men, those highest up in any profession, are always seeking to advance, trying for better things than they have, trying to help a larger number than have been helped.

Agassiz died a poor man (though he had all that he needed

during life), because, as he said, he had no time to stop and make money.

His son availed of some of his knowledge, and became a rich man, and Harvard University is the richer by a fine building, which the elder Agassiz had not time himself to earn.

Professionalism seeks to improve on the present. Trade buys up improvements, and suppresses them where they conflict with self-interest.

Changes are to-day needed in the National Society to bring it up to a greater degree of efficiency and usefulness.

These changes would take it out of the possibility of control of the supply houses, and make of it a strictly professional body, so the trade journals do not wish to lend their pages to promote any such purpose, and it is practically impossible to reach the mass of dentists practicing in America to-day.

Were I to write about filling teeth, and say that with any separator now procurable it would be impossible to reach certain proximal cavities, the houses that furnish the separators now made would not wish to publish that, especially if I inserted the pattern of a properly made separator.

If I wish to write on Orthodontia certain journals would, I believe, be closed to me, because I should probably recommend appliances that could not be bought at the house publishing the journal.

Nor can I accept an offer, which I have, to publish and to illustrate whatever I may write, for then I should be in the same position as the editors of those magazines. I should be in honor bound not to write anything that would play into the hands of competitors, and so should be obliged to leave out some things that I know to be valuable; and sins of omission are at times quite as bad as sins of commission.

It is a truism that any independent dental journal, that is not established on business principles, will sooner or later fail, and if the calling of dentistry partakes so little of the professional spirit as to be unwilling to do anything that does not bring in money, then indeed is the prospect of any independent journal unfavorable, even if it be founded according to the most correct business principles.

But the number of honest seekers, who are not willing to have truth suppressed for the sake of a few dollars, is increasing,

and the collar of servitude will not much longer be worn by the dental profession in America. It has been already thrown off across the ocean, where it is well recognized that the pursuit of wealth tends to unfit men for the service of the state or for the service of their fellows, which, after all, is the higher duty of man.

Dr. T. Ledyard Smith: I do not believe I can say very much more than I have already said, and I certainly cannot reply to such a volume of laborious sarcasm. Dr. Bogue's remarks are perfectly reasonable; if he differs with me, that is his privilege, the privilege of all men. In justice to myself, I must say that I have never been connected with commercial dentistry in any way. Had I been, I would probably have some money in the bank. I absolutely maintain that my professional life has been as ethical, honest and professional as that of any dentist in this country. There seems to be a surfeit here of Kirk and Cosmos. I would not know the man if he were here. I have not always subscribed to the Cosmos, and my paper had no special reference to any house. It was simply on commercialism. All the houses in the United States, not only houses, but individuals, even the small firms, are sending out literature. The Cosmos is not the only dental paper in the United States. I believe that if those who have replied to me this evening would spend a little money and subscribe to five or six of the other journals, they would be able to discuss this question more thoroughly.

A unanimous vote of thanks was passed for Drs. Dunne and Smith and for Mr. Glossford, the chemist.

Adjourned.

REPORT OF UNION MEETING.

A union meeting of the Metropolitan District Massachusetts Dental Society, the Harvard Odontological Society, the American Academy of Dental Science and the Tufts College Alumni Association was held at Young's Hotel, Boston, on Friday, January 25, at 6:30 P. M.

At this meeting The New York Institute of Stomatology was present as guest of the above societies.

Despite the inclemency of the weather, about 300 members were present to testify to their interest in and support of the purposes of this alliance. After the banquet the society considered as its subject "The Work of the Allied Societies," as follows:

REMARKS ON PROFESSIONALISM AT THE UNION
MEETING AT BOSTON.*

DR. J. MORGAN HOWE, N. Y.

We live in an era of constant and great additions to the store of knowledge. Discoveries and inventions, which facilitate work of all kinds, are accomplishments by which the world at large has made great advances, and we, in common with trade, commerce and manufactures, have had our share of progress. A large part of this has come to us from outside our ranks, and we are only moving with the tide. There seems to be nothing in this that we can claim for ourselves a peculiar merit. It is progress of a similar kind that characterizes all human activities. In these respects we have much in common with trade and commerce.

But arguments have been made by some of late, to prove that there is no difference between the ethics of trade, and that of a profession, only one of which I will now call to your attention.

The editor of the *Dental Cosmos*—who is also Dean of the Dental Department of the University of Pennsylvania—in the February issue of that journal, on “The Passing of the International Dental Journal,” said . . . “the fundamental error in the motive of the *International* is the variously expressed idea that there is some essential difference in the ethics of professionalism and the ethics of trade,” . . . “Both are based fundamentally upon common honesty and equity, and any other conception of this basic principle does not seem to us to accord with the facts,” and further on says, “the tendency to read into professionalism something of a higher altruism which it is supposed to contain as our exclusive characteristic, has brought to at least a temporary end the career of our highly esteemed contemporary.”

With these views, it would not seem as if one need give great attention to ethics, but yet the same editor wrote on “Ethics and Professional Progress,” an article which appeared in the November issue of the *Cosmos*, occupying four and a half pages. It seems to be a reply to a demand that ethics should be taught in dental schools and the gist of the answer is that if students are taught so that they really understand the theoretical, or scientific

*Read at the meeting of the Allied Societies, Boston, January 25th, 1907.

part of the curriculum, with a correct conception of "atoms, molecules, mass action, catalysis, osmosis, enzymes and many other abstractions," they will then be likely to shun quackery and charlatanism. He inculcates "it to be a fundamental principle of belief and action in ethics" . . . that "honesty is the best policy," and that . . . "Ignorance of this fundamental principle, or disbelief in it can be the only rational explanation for its neglect, especially from a selfish point of view, which is the view that leads the candidate for professional success to resort to illegitimate methods for its attainment."

We all agree, I think, that honesty is a fundamental principle of ethics, without which as a basis a moral character is hardly conceivable, and most of us would not trust one very far whom we know to be honest merely from motives of policy. This foundation stone we expect to be laid in all characters worthy of trust, not for expediencies' sake, but as a necessity, without which genuine worth and honorable character cannot be built. But is that all there is of professional ethics? Almost every mill, manufactory and business rises to the height of such a moral level, and while some may disbelieve that honesty in certain cases is the best policy for them, there are many others that invariably believe in and practice honesty for better reasons than policy. But although honest, most of the mills and factories—the world over—have well equipped departments of research under the control of scientifically educated men, who secretly pursue their work, to discover new processes of manufacture, improved goods, utilization of bye-products, etc., all of which is kept carefully guarded from the knowledge of those outside their own business. This applies to manufactures of almost every kind, including dental goods. So well recognized have trade secrets become that a law has been enacted in New York State making it a punishable offense to seek by means of tips to acquire knowledge of such secrets from employes. Scientific culture contributes in such ways towards progress in business, and the men engaged in such investigations are in special education the equals probably of any in the world: honest and scientific, but not professional. Elbert Hubbard, in an essay on "Business Progress," recently said, "There are now fifty-seven varieties of learned men." But the motives and conduct of such business activities, with all their scientific acumen, cannot be

called professional. No such claim is made for it. The reward they obtain is what they seek.

What is it then that makes a profession different from commerce, trade or business? Neither honesty nor learning of a scientific or other character, necessarily makes men professional. If there is no difference between the ethics of business and those of profession, then why do we claim—why does any one claim—to belong to a profession? But the word is constantly presented. The editorial from which I last quoted contains the word “profession” or its compounds, sixteen times in the first page and a half.

I ask you to consider whether I am not right in claiming that the only basis for professional distinction must rest upon its moral code, requiring “something of a higher altruism” than “common honesty and equity?” If it is to be differentiated from the basis of a business in any way, it is in its ethical foundation that the difference is to be found.

Professions have had traditions relating to the duties of its members, to each other, and to the public whom they serve, and they still have a manifest force. Generally accepted rules of conduct which constrain men who make claim to professional connection, are still operative, and are quite aside from, and above, the recognition of the maxim that “Honesty is the best policy.”

The professional courtesy which restrains those engaged in all branches of the healing art from using ordinary business methods (even if honest) in dealing with the patient of a fellow practitioner; and all the measures taken, and investigations made, that would lead to self-effacement, by preventing dental or systemic disease, and the amelioration of conditions that lead to abnormal or pathological conditions, are also “something of a higher altruism” than “honesty is the best policy,” quite beyond and above the honest efforts of the business man to create a demand for his products.

The editor I have quoted seems, denies the existence of such a moral code, or wishes to sweep away or ignore the rules that require a professional man to relinquish certain rights of which outside a profession he would avail himself without question. He would eradicate the old-fashioned sentiment that recognizes in professionalism the spirit of education and mutual enlightenment, holding not back a part, because it is worth money:

the rules governing consultation, general treatment of confreres and patients, advertising, secrets and patents, all of which restrictions still command sufficient deference, to restrain many, and to cause others to indulge their desire to evade them for expected gain, in as clandestine a way as possible.

Some there are also who are so indifferent to professional relations compared with expected pecuniary advantage outside such restraints—with more honesty, perhaps—openly throw them off, and make no pretensions to alliance with their confreres. They are quite within their rights in doing so. As business men they may be honest, but they lose the right to professional recognition.

In the case of Ananias and Saphira, we remember, that it was only in the false pretense of sincere alliance with the body, who voluntarily had all things in common, that their holding back of a part of the price of their property was judged dishonest and false. Peter said to him, "While it remained was it not thine own, and after it was sold was it not in thine own power?"

If we are not bound together by ties of mutual helpfulness in knowledge, and of self-denial of rights which business men may freely and honestly exercise, and if our intellectual attainments are no greater than those of business men in their several spheres, what reason have we to regard ourselves as a professional body?

Let us consider for a moment what would result if the only ethical consideration that constrained us was the business maxim that "honesty is the best policy." As individuals and as societies, how different would be our relations. Instead of telling each other what we know—or think we do—secrecy would again become the rule. Patents would become more common on appliances and methods, and public advertising would be quite general because it could not be regarded in any way objectionable. There is nothing inherently dishonest about it. Many of us would be able to equal your honest ex-Governor of Massachusetts in his advertisement of a "Secret tanning process for Soles, makes them wear longer than others."

The traditional sentiment of professional dignity, and of consideration for each other in consultation, and of solicitude for the welfare of patients, leading to advice tending to make our services less in demand, would all disappear, because they are "something of a higher altruism." It is easy to perceive, how-

ever, that if such altruism was banished from professional ambitions, the purveyors to the needs of dental practitioners would have control of the situation in a greater degree even than they do at present. Dentists would be still more willing to patent their inventions and transfer them to manufacturers to either exercise a monopoly in their output, or to prevent their use altogether, as they often do. Secret compounds would be more common, as their authors would not lose any standing. Nostrums would be more used and dealers would by so much benefit in the sale of such profitable goods. There would probably be a greater demand for dental goods, because there would be more dental work done. The dental supply trade would be brought nearer to the dental practitioner, both being honest there would be difficulty in pointing out their distinguishing marks. The professional man would be a tradesman. The honest advertising dentist would have the same professional standing as the one who renounced such rights, and his patronage would—as now—be the most valuable to the supply house.

It does not seem probable that those engaged in furnishing dental supplies would regret such changes, for they are in business to make money, but I cannot be wrong in assuming that the great majority of dental practitioners would deplore the least shifting of the standards towards such conditions. Even those who now secretly indulge their rights of citizenship in contravention of these old-time professional sentiments, would probably regret the passing of opportunities to make high professions.

With the passing of the traditional desire of the professional man to enlighten his confrere, although there would still be schools, they would be similar probably to the schools of plumbing, barbering and stenography; societies would become obsolete because communication and discussion would not pay, and the journals owned and issued by supply houses would assume the character of trade circulars, their issue would cost less and their returns would be larger.

Several of the journals issued by supply houses seem just now to be considerably agitated over the question of journalistic independence of trade influence. In various ways, through their editors and otherwise, they are claiming a higher altruism, in that they are devoted to the interests of the profession."

The first dental journal was issued by dentists who formed

an association for its publication. Among the names of those whose devotion to the cause of education and enlightenment caused them to assume the financial responsibility, and the labor of editing the American Journal of Dental Science, were those of Hayden, Harris, Parmley, Maynard, Dunning, Dwinelle and Westcott. It continued from 1839 to the death of Dr. Harris in 1860. The names of those who carried the burdens and met its financial deficiencies constitute one of the honor rolls in our history. They were actuated by the higher altruism that constitutes one of the fundamentals of professionalism. But their work had not been carried on very long when the commercial advantages of circulating dental literature was recognized, and this resulted in the issue of Stockton's Dental Intelligencer in 1843, and the establishment of the Dental News Letter by Jones, White and McCurdy in 1844.

Since that time journals owned by the trade have grown and multiplied so that it seems to be a recognized requirement of a dental manufacturer or dealer to own a periodical containing our literature.

Now I think we have no cause to disparage trade journals as such, on the contrary we recognize that they have done a great deal of good. Much thought, many theories, and innumerable facts have been recorded in print and been circulated that would not otherwise have traveled far.

Meantime there has been almost from the first a feeling of protest against the assumptions of these periodicals that they wholly represented dentistry as a profession. In various parts of the country, at different times journals have been published by dentists who have assumed the financial responsibility because their professional sentiment found expression in issuing a periodical not under the control of those who made and sold their supplies. Such were the Independent Practitioner, the New England Dental Journal, the Archives of Dentistry and the International Dental Journal. The same sentiment that influenced those who published and edited these journals is still strong, and will not down. It is evidenced by the utterances of our confreres in widely separated places that they cannot rest content in having the periodical issue of their thought entirely in the control of those who are not professional in their aims. The desirability of an unfettered professional press is also endorsed, and its propriety

conceded in an emphatic manner by some of the editors of the journals owned by dealers, in the claim they make that their periodical is entirely free from the influence of their owners and publishers. And the medical profession have manifested their interest in this regard by the establishment of strictly professional journals, and have had to meet the opposition and attacks of the proprietary periodicals. There are not at present any other co-operating forces in the dental fraternity so available for keeping alive this professional sentiment in this country, as these societies so happily now holding this union meeting, and there has not been at any former time so many as these societies represent, interested in presenting their regular society proceedings, independently of the support and financial backing of a dental supply house. It will cost something in money, and much in effort, on the part of those directly in charge of the work; but if we believe in the superior dignity of a profession, and that its ethics include a "higher altruism" than "honesty is the best policy," we can certainly maintain these sentiments better by publishing our own transactions, rather than in any journal owned by those who have an interest in abolishing them. Every one of us has been helped in accumulating his store of knowledge and skill by the heritage of information that came to us through the altruism of past generations, as well as by the fraternal suggestions and demonstrations of our living confreres. All of them actuated by motives not of policy, nor of business enterprize—although honest—but of professional spirit. We cannot do our part in disseminating our ideas of professionalism, unless we make the protest against commercialism that costs us something.

Dr. Henry W. Gillett, New York: Mr. President, ladies and gentlemen of the allied societies:— I thank you for your welcome. I am glad to be here. I am always glad to attend a meeting here, because I find myself among the friends whom I made when I first began to study dentistry.

BY HENRY W. GILLETT, D. M. D., NEW YORK.

Mr. President and Gentlemen of the Allied Societies:

The President of the Institute drafted me for work this evening, which I feel *he* is much better qualified to perform; but, as it was his province to decide whether or not I should rattle

round in his place and try to fill it, I will do what I can to answer the call.

I know that our journal is one of the things he expects me to speak of. The reasons why there should be a journal controlled entirely by members of the profession I shall leave to be stated by others, and refer briefly to matters relating to the inception of *The Journal*, which are probably not familiar to all of you, and shall say something about the hopes of those taking part in the earlier steps of its development and the possibilities that seem to lie dormant in the idea.

When it became apparent that *The International Dental Journal* was to suspend publication *The New York Institute of Stomatology* proceeded to consider what medium should succeed that journal for the publication of its proceedings. The committee appointed to consider the matter felt that probably all the societies publishing in *The International*, in view of their past record, and certainly *The Institute* would be unwilling to publish in any medium not solely under professional control.

As a matter of fact, *The Institute* promptly decided to publish a journal of its own, and invited the American Academy of Dental Science. *The Harvard Odontological Society* and the *Northeastern Dental Association* to join with it in the enterprise. This invitation, as is known to many of you, was accepted by the Academy and the Odontological Society, and we have since been glad to welcome the *Metropolitan District* and the *Tufts College Alumni Association* into the alliance. You all know that *The Journal* has begun very modestly as a quarterly and without advertisements, devoting its entire energies at first to publishing the material supplied by the societies in a becoming manner, and in particular endeavoring to do full justice to essayists in the matter of illustration.

It remains to be seen whether by the logical following out of such a course as has been mapped out for it a journal can be developed that shall become an essential to every English-speaking dentist, and the sought-for medium for the expression of the advanced and most valuable thought of the dental world, and consequently the journal which no advertiser of dental supplies can afford to neglect or offend. All this seems possible to some of us.

There seems to be an erroneous idea abroad to the effect that those interested in *The Journal* object to any contact with

trade or trade advertisements. This is not borne out by the facts, and the announcement in the last number of *The Journal* that advertisements will now be accepted by it is merely the carrying out of a policy decided upon at the start. Such a journal as we have in view ought, in my estimation, to be open to every legitimate advertiser. At this point I wish to refer for a moment to a paper recently presented by Dr. T. Ledyard Smith, in which he has taken the ground that the profession is dependent to such a degree upon what he terms its "commercial side," that without it the profession could not exist. It seems to me that Dr. Smith has reversed the relations of the profession to the commerce resulting from its requirements, and when he goes on to argue from the position that he thus sets up that there is no need for such a journal as we are establishing, because the journals we have had have been successful, it arouses a desire to note certain points that seem to me pertinent.

I wish to say with emphasis that I have no stones to throw at so-called trade journals. They occupy a legitimate field with varying degrees of success—some of them with such success that we could ill afford to spare them. All the editors of dental journals I know, are men whom I respect, and I believe they are using their positions for the good of the profession. I, therefore, wish to make it clear that I am not trying to tear down anything that we have which is good in order to build up something else on the ruins, but I wish to suggest for your consideration what some of my editor friends will call an utopian dream.

Our most successful journals of the past have been successful primarily because of the quality of the reading matter they offered the profession. Nearly all of this has been drawn from the dental profession, the major portion having been first presented before dental societies.

This means that the dental journal is dependent upon the profession for the material necessary to make it a success, and just in the proportion that it obtains this material which creates a demand for it does it become valuable as an advertising medium.

One or two of our most successful journals are supposed to charge \$100 per page per issue for their advertising pages. If this rate were applied to all their 80 pages of advertising it would mean an income of \$8,000 per issue as the income for advertising.

I think I am correct in stating that no dental journal claims over 15,000 circulation. One well-informed editor has stated to me that 12,000 is a fairer figure, but we will accept for our present purpose the claim of 15,000. Bear in mind for a moment the fact that dental supply houses and manufacturers seem to consider the pages of journals with a circulation of 15,000 worth \$100 each for advertising purposes. How do you think they would regard an advertising medium which they knew was to reach every English-speaking dentist in the world, or even all the members of dental societies, and one which they knew would carry text of such value that no dentist could afford to do otherwise than examine it?

Advertising men tell me that in ordinary commercial advertising fancy prices are gladly paid for the opportunity to reach such selected lines of readers.

Do you think the manufacturer would be slow to pay an increased price for advertising which he knew would reach 50,000 dentists?

Does this thought suggest that as a profession we have been turning over to others whose interests are at least not always identical with ours an asset of much value?

Does it suggest that an alliance of strong dental societies, or a national association of 10,000 members (20 per cent. of our number), or even an association of individuals who would subscribe the \$25,000, or even \$50,000 if necessary, needed to establish such a journal, would find it a very profitable venture?

To me the thought is pregnant with possibilities, and I wonder if it might not be possible to pay reasonable dividends on such a capitalization, and also accumulate a surplus that should enable us to establish some of the laboratories for scientific research which we need so badly, and so send our profession onward by leaps and bounds.

I believe dental journalism can be made profitable, and that it is the province of the profession to use the commercial dealer for its profit and benefit, instead of being exploited by him.

The first essential is a supply of suitable matter to publish, and this must come from a strong alliance of strong dental societies. This supply being assured, I believe the rest could be made to follow under the guidance of a level-headed business man with a clear grasp of professional ideals. Those familiar with the

affairs of *The Journal* are convinced that all the editorial matter desired from men whose names would add distinction to its editorial pages is at the command of a journal such as we are considering.

I believe such a journal sufficiently capitalized at the start could pay an efficient business manager a generous salary, could allow each of its contributing societies a suitable sum for clerical assistance to enable the society's editor to handle its material promptly; could afford to pay postage and send its copies gratuitously to all ethical English-speaking dentists, and collect enough from its advertising to show a profit from the start.

Alleged literary magazines are known to be very profitable, but they draw their profits from their advertising.

I am not disposed to criticise supply houses for taking advantage of their opportunities and using the material we have been glad to supply them with to build up their mediums for advertising. Their business accumen is commendable, and some of them have been farseeing enough to realize the value to them of continuous and continued effort to build up the profession by improving their journals.

This feeling is, however, entirely compatible with my desire to see a great good come to our profession by taking advantage of the manufacturers' legitimate desire to spread their wares before as many of our number as they can reach.

The business management of such an enterprise should be in the hands of a well-trying business man, responsible to a managing committee chosen from their number by the members of the allied societies.

Dr. Davenport's request that I help represent *The Institute* at this meeting was so phrased as to stand fairly well for an invitation to preach you a sermon. Now, it may not be in the best taste for me to do this, but at his prompting I am going to take up one or two matters that seem to me to come within his specification.

I wish to appeal for associated effort on the part of the allied societies directed toward influencing the status of dental education. I feel that the day has come when we should discourage the stock college—by that I mean the dental college owned by a private corporation whose stockholders are looking for a profit on their investment.

I do not deny the possibility of their doing good work—I believe some of them are doing good work, but, to quote Dr. J. E. Nyman in closing the discussion on his recently published paper. “I do not condemn all stock colleges, but I say they should be abolished because of the opportunities they present for imposing both upon the public and the profession from motives of pecuniary gain.”

I would appeal for united effort in extending the true university spirit in our college work—that spirit so prevalent in this section of New England which leads busy professional men to sacrifice five to ten per cent. of their working time each year, without pecuniary reward, in the effort to start the next generation of our profession equipped with as much of the knowledge they have gained in a lifetime of practice as they find it possible to impart.

No one man is in a position to attempt to single out the colleges that are unworthy of our support, but those of you who have had experience on state examining boards know that certain colleges send candidate after candidate before your boards who can by no possible stretch of the imagination be thought to have fulfilled the published entrance requirements of their colleges.

Sores of this sort in our educational system should be exposed. The statistics that prove their existence should be published and knife should be applied with courage and vigor.

It is not fair to decry the colleges without distinguishing the sheep from the goats or to rate them according to their published requirements. They should be judged by their records, and the statistics in our examining board records, if properly kept and tabulated would throw much light on the problem.

In order to insure action on this matter a demand for it must be voiced by some influential portion of the profession. Why should not the societies allied in this matter of professional journalism voice this demand? I would suggest that this or any question that any one of the allied societies considers, after debate, to be worthy of such action, be submitted to the other societies of the alliance for their consideration, and when conclusions have been arrived at, that they be published with the sanction or endorsement of the alliance.

In conclusion, I wish to appeal for associated effort in culti-

vating a spirit of loyalty to our profession. The amount of rubbish published about the way for the dental profession to obtain a recognition and standing equal to that accorded other professions is astonishing.

When, as a profession, we do our full share of the charitable work of the world, when at least a third of our number are educated gentlemen and, above all, when we show by word and deed that we are loyal to our chosen profession, and that we consider it on the same plane as the other professions, then recognition will come to us in full measure.

I am thinking now of that broad loyalty which shall lead us always to uphold with dignity the standing of our profession, and whenever the opening presents, to direct attention to its achievements and its opportunities for benefitting humanity rather than to apologetic reference to its shortcomings or its weaknesses; of that loyalty which shall make it our habit to permit no imputation of wrong motive or incompetence against any dentist known or unknown to us, without making it evident that such imputation should be promptly supported by sufficient evidence or else withdrawn; of that loyalty which shall mean an habitual attitude of mind that shall avoid siding with those airing grievances against any dentist, unless the evidence is plain and unmistakable, and which shall even then tend toward suspension of judgment till the accused shall have opportunity to be heard; above all, am I thinking of that loyalty which shall carry into our dental society work cordial willingness to help the brother dentist who is in error, and *equally* cordial receptiveness of his proffered aid when he finds us in similar plight.

I am thinking of that still greater loyalty to our professional brothers which shall lead to quiet, earnest and helpful private effort with the individual when we find him off the true course, and doing that which will injure his professional standing and the profession, or to the prompting of some other brother who can do this, if to act oneself will border too closely upon officiousness.

It is by strengthening the weaker units that we shall advance the status of the whole body, and by strengthening the whole body shall we encourage the weak-kneed among us to attain their highest possible level.

I appeal to you gentlemen of this alliance for a broadening

of the lines of your interest beyond the membership of your own particular society and the opportunity it gives you to gather new ideas; for an interest that shall reach out to the individual members in the profession and strengthen their hands for the sake of strengthening our general status; for an interest that shall lead to strong alliances between dental societies with similar aims; and for an interest which shall constantly reach out in effort to create and strengthen sentiment in favor of some form of national organization which shall include at least one-fifth instead of one-one hundredth of the members of our profession, and in which progress of the profession toward the goal of the greatest possible good to humanity shall be the aim *overshadowing all others*.

Chairman Potter: Dr. Gillett has broadened out the objects of this society to include much more than the first. Gentlemen, we will now hear from New England.

Dr. Frederic Freeman (Representing the Metropolitan District: Mr. President and Gentlemen:—As a member of the committee, I want to thank you for your hearty indorsement in coming here to-night to welcome our guests of the New York society. It is the first union meeting of our societies under one roof.

They are all working on a different line. First, the Academy of Dental Science, the Harvard Odontological Society, the Metropolitan District Dental Society and the Tufts Dental Association.

Now, why cannot these men come together more than once or twice in twenty-five years? It is because we are so narrow minded and too lazy to get out of our ruts.

Now, are you willing to help in the work? There are not five men in all the societies who know the work that is done in the societies. You must put your hands to the plow and help. I want to tell you that they have been criticising the Metropolitan District Society because it has a Board of Censors. But this serves an excellent purpose.

Another thing, you have your papers read before you. The men discuss them. Good discussions, and we never hear any more about it. Now, every one of these societies should have a higher object than to throw these papers and discussions away. The men in these societies are eager and willing to give every one recognition for original work, papers, etc. They will get good papers worthy of being published. We do not want papers

prepared ten minutes before being read. The only way for us to elevate the profession is for every man to help and do a part in the work of his society.

Dr. Robert T. Moffatt (Representing the Harvard Odontological Society): I think I may make clear the position of the Harvard Odontological Society by quoting from an article written by Prof. Potter of the Harvard Dental School, and read by him at a meeting of the New York Institute of Stomatology, held in New York May 3, 1898.

I am reminded in this connection of the action of the Harvard Odontological Society some ten years ago, when it first decided to publish its transactions. Its first thought was to find a thoroughly professional journal in which work could be published. It passed by all trade journals, which would have been glad to have taken its proceedings, and have furnished ample illustrations and lightened many of the burdens of publication. It hired and paid for its own stenographer, and found a journal published west of the Mississippi whose circulation was known to be meagre, but which was a strictly professional journal. And in this journal it published all its transactions for a year or more. The Harvard Odontological Society is composed of graduates of the Harvard Dental School, and has always been an important society. Its members practically bind themselves to take their turn by lot in supplying papers. Now, this society, notwithstanding the importance and variety of its work, was more interested that the record of its work should be made in a thoroughly professional journal than that the record should be expensively illustrated, or should have the maximum circulation.

It was deemed inconsistent that a society composed of graduates from an ancient university should express itself except according to methods prevalent in other departments of the university. Who would think of looking in an electrical supply manufacturing journal for published results of work done in one of the great electrical laboratories of the university? And why, then, should the Harvard Odontological Society make use of a trade journal as its organ? Considerations of this sort, which naturally occur to men in contact with the methods of scientific men, led the Harvard Odontological Society to select the remote and in many ways unimportant journal for its use. Later, when

a more important professional journal was started nearer home, the society transferred its proceedings to its columns.

Profesional journalism can only be advanced by the development of a thorough professional spirit. Trade journals can only appeal to one whose professional sense is lowered by the spirit of trade. The strength of trade journals is in inverse proportion to the strength of the profession.

Dr. Horatio Meriam (Representing the American Academy of Dental Science:

THE OPPORTUNITIES OF DENTAL SOCIETIES.

BY HORATIO C. MERIAM, D. M. D.

(Representing the American Academy of Dental Science, Read at the Meeting of the Allied Societies, Boston, Jan. 25, 1907.)

Mr. President and Gentlemen of the Allied Societies:

I feel deeply the honor you do me, in asking me to represent the Academy at this first meeting of the Allied Societies. Years since, the connection of the Academy, and the leading men in the societies in New York, Philadelphia, Baltimore, Washington, Chicago and Cincinnati, was very close.

The address, then a feature of the annual meeting, was usually given by a representative practitioner of one of these cities. Did the occasion call for it, it would be interesting to review these addresses and see to what extent the ideas then advocated are now held in our calling. I shall refer to but one, that of President Eliot, interested as an educator in our progress. From this address, given in October, 1878, I have quoted before. But a generation has passed since the address was given, and the boys who heard it now move with gray heads among us. I quote it again for a younger generation, who are at once our pride at this present and our hope for the future, and as evidence that the present meeting is in line with educational progress, even if it is not allied with trade and trade journals.

He says: "There is another common attribute of good physicians and surgeons which has had great effect to elevate and liberalize their profession—I mean their characteristic zeal for teaching. This zeal is manifested not only in giving direct instruction to medical students, but in imparting to medical societies and the public every important fact observed, every useful

practice invented, and every suggestive opinion or promising theory conceived. The constant desire and purpose on the part of its members to teach, to impart to all any peculiar knowledge which each may acquire, is one of the principal distinctions between a liberal profession and a trade. Dentistry would have no claim to be called a liberal profession, did not its practitioners manifest this zeal for teaching. * * * * *

"Does it seem to any of you that the best part of your profession has no weapons with which effectively to attack abuses intrenched behind the self-interest of the few who profit by them? Let me assure any such doubters that public discussion is a weapon very formidable to those who for selfish ends maintain abuses or resist improvements. Instructed by the history of the professions of law and medicine, let us confide in the power for good of the public sentiment of the profession, expressed in societies like this, in dental journals, and in daily conversation, and reinforced by the informed opinion of the educated public."

Have we had at any time since, discussions that are not in line with this? And our work as Allied Societies will move along these lines, though perhaps some dealer's man even then may have thought that such things should be expurged from society proceedings. In a later address before another body President Eliot said "that the great value of a university was giving young men personal character, personal independence, and personal initiative." I made the mistake then, I have made the mistake since, and I hope to live the rest of my life under the ideas that our calling shares in all these things. That Character, Independence, and Initiative belonging with it, are for dental students also. That at the doors of our calling should not be written, "All pride abandon who enter here." Before schools made us doctors great nature made us men, and that we go on from step to step broadening with it, that being part of nature, we follow where she leads, and find

"From the twins is nothing hidden;
To the pair is naught forbidden;
Hand in hand the comrades go
Every nook of Nature through;
Each for other they were born,
Each can other best adorn."

Personally I am proud of this gathering, and that I am part

in it. It is big with promise; for the future is before the allied societies, and some one here may be the future leader, taking up work that needs doing, and not counting ridicule or misrepresentation can say

“I see a hand that they cannot see,
I hear a voice they cannot hear.”

Think of the work done by one man before the Primsoil line was established. Some one writes that the Reformation was the work of a few, that the great majority would have been for either side that would let them keep their shops and till their fields in peace. Leaders lead by representing ideas, and after generations give them place. Leading German Catholics to-day recognize the value of the protest embodied in protestantism. England erects monuments to Cromwell and memorials to Washington, claiming that he fought the fight of Englishmen; that in resisting wrong and oppression in America he resisted for Englishmen everywhere. Shall we be asked what has this to do with instruments, regulating or filling teeth; or the work of the Allied Societies? Surely the man behind the gun is needed and the man behind the instruments and the plaster-casts, and the man will be needed for the work of the Allied Societies. In this day of the ready-made, in the day of canned foods, and concentrated information in books of reference, it is well to keep in mind the great lesson in the Essay on Compensation, and take heed to ourselves and keep our souls diligently, “Lest we forget” and grow narrow and selfish in the midst of our modern conveniences.

Material success is good, but let us keep things in such place and proportion that it leads to the better things of the mind and the heart.

I am saddened by the personally conducted practitioner who has become only ditto to the salesman who supplies his wants, or who echos another man's man, who edits his journal, and sometimes directs expurgation of papers “that might injure us” by causing thought regarding condition of our professional life. Some of you may remember that last summer at the Massachusetts Society meeting I quoted from the Pious Editor's Creed. I looked it up afterwards to see if I had quoted rightly, and found that there were other lines also applicable with slight alterations which you can readily detect :

"I do believe with all my soul
 In the great Press's freedom
 To pint the (dentists) to the goal,
 And in the traces lead um;
 Palsied the arm that forges yokes
 At my fat contracts, squinting,
 An' withered be the nose that pokes
 Into the (societies) printing.

* * * * *

It ain't by principles nor men
 My prudent course is steadied;
 I scent which way that pays the best
 And then go into it baldheaded.

* * * * *

This hast my shepherd faithful ben
 In pastures sweet to lead me;
 An' I'll help to keep the (dentists) green
 To feed as they have fed me."

Not many years since a man was taken from his work in Boston to serve his term of duty as one of a jury. After the jury had completed the service the man returned to his work to find himself discharged and his place filled by another. This reached the ears of the judge, who called the employer into court, and told him that he should punish him for Contempt of Court unless he reinstated the man. The trader or manufacturer may not have realized his own degradation in discharging a man obeying law and doing his duty to his State.

It seems to some business men as if wealth were the king of everything; as if it made reputation, made happiness, almost made character. They stop at wealth and do not consider that there is any cause or effect further back. That in seeking it they may be unconsciously growing to be bad citizens, sharing in the protection of the laws, but shirking when called on to share in the obligations and inconvenience of supporting them, disloyal to their country and its institutions as much as if they fought against her, or furnished arms to her enemies.

You may remember Mr. Lincoln said that he thought that the men in New York who tied up gold during our great struggle were worse than the rebels in the field. We are fortunately ex-

empt from the temptation to the extreme brutality to which many business men yield, and which we can never expect to disappear from the world, but which can be controlled or held in check by public discussion, as President Eliot has suggested. Providing for such discussion may well be the work of the Allied Societies. Little, I suppose, did Dr. Rollins think, years ago, when he described and illustrated a new burr, that a law-suit would turn on it which would result in pecuniary advantage of our calling throughout the world. Yet I cannot recall that any dental editor devoted to the interest of dentists ever printed a report of this case. Can you imagine a financial journal not reporting a case of interest to bankers? A medical journal one of interest to physicians? One of the duties of the Allied Societies will be to provide a constituency who will support a journal representing all sides of dentistry, this constituency to be constantly recruited by young men from the schools.

Is it not possible that as a young man learns the technique of our calling he may also grow under his teaching in professional perception? We may sorrow that a Harvard man promoted such a thing as the Tooth Crown Company, but a deeper sorrow should fill our hearts if a man may graduate from any school without as much as hearing in them, that there is a professional spirit that should rule in the hearts and lives of their graduates, or of knowing that there are some things that no fellow can do.

The best way to combat the weakness that relies on the use of non-professional remedies is to teach and use those that are professional, and every school and every chair in a school should have its book of formulae. Things like this the societies can well from time to time recommend. The chairs in our schools are filled by men of such wealth, skill and professional position that they can afford to introduce this teaching if they will. The Allied Societies will aid all such efforts. Especially the societies that represent the younger men who are making good for the future.

The treatment of Pyorrhoea is so important that it may well now be given a distinct place in the curriculum of our schools with a chair, an instructor, and clinic, teaching the medicines used, as well as the instruments, and examination be passed before being graduated.

Little more than a year ago a demonstration of wireless

telegraphy was given before the Academy. The demonstrator showed that vibrations or waves in ether passing through solid walls, through storm and turmoil of the atmosphere, fog and mist, snow and heat, could transmit its wireless message to its receiver. We believe this because of its demonstration. But this power existed in ether since time began and will last until time shall cease.

With such forces in nature may we not claim that our calling may have a life and atmosphere, through which a current of professional thought and feeling may flow, which, though we cannot see it, we shall realize by the manifestation in professional life, professional loyalty, professional spirit and personnel, in kindly word and deed.

All this the Allied Societies must represent to grow. Call these forces spiritual if you will, ethical if you will, moral if you will; only make sure that we call them to our aid.

Be noble and the nobleness that lies in other men,
Sleeping, but never dead,
Shall rise in majesty to meet thine own,
Then will thou see it gleam in many eyes;
Then shalt pure light around thy path be shed,
And thou shalt never more be sad or lone."

I hope that I have not abused the confidence shown by your committee in asking me to represent the Academy at this meeting. I feel strongly that our calling is what we make it. That the Allied Societies will be made up after all of men. That each step forward or upward will mean, if we are to do any good, greater obligation and duty.

Of this we may be sure, that crime is not in failure, but in low aims. So

"Stand to your work and be strong,
Certain of sword and pen,
For we are neither children nor Gods,
But men in a world of men."

(Report of the Union Meeting to be continued.)

THE JOURNAL

OF

THE NEW YORK INSTITUTE OF STOMATOLOGY
AMERICAN ACADEMY OF DENTAL SCIENCE
HARVARD ODONOLOGICAL SOCIETY

AND THE

METROPOLITAN DISTRICT

(MASSACHUSETTS STATE SOCIETY)

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No. 2

AN OUTCOME OF TRADE JOURNALISM.

Dental journalism had its birth in the United States. The motive which prompted the publication of the first periodical especially devoted to the advancement of Dental Science, "The American Journal of Dental Science," is fully expressed in the salutatory address of the publication committee, dated New York, June 1st, 1839.

Organized effort for the advancement of professional interests was then in its infancy. The pioneers in this work were hampered by an inability to freely communicate with their professional compeers, to advise with them, and to secure their active co-operation. There was, undoubtedly, with many, a selfishness tending to withhold from their fellows helpful suggestions gained by experience, but that this was not general is attested by the fact that many had taken pains to publish such matters in book form, and in the journals of the day, and by the rapid growth of dental societies and dental journals that immediately followed the advent of the American Journal of Dental Science. This first dental journal was a strictly professional affair—a dental

journal published by dentists for dentists—having no other object or aim than to advance the interests and promote the usefulness of a profession rapidly advancing in dignity, in its attainments, and in public esteem. It required courage to inaugurate this new enterprise, it called for a generous contribution of well-earned cash, of time, of talent, of effort, and a personal sacrifice on the part of all who took part in the venture, with no other object in view than the general good. The effort was a success. It opened an avenue for reaching members of the dental profession that was entirely new, and one that was quickly appreciated by those having other objects in view than had Eleazar Parmly, Elisha Baker, Solyman Brown, and their coworkers. Fortunately for the profession, those who entered dental journalism for advertising purposes realized that building up the profession's material and scientific interests, increasing its efficiency and enlarging its sphere of usefulness were matters in which they would have a profitable share. It was good business policy to make the journal representing a business house attractive, and useful to its patrons. The journal itself was an advertisement, and more valuable as its circulation increased and its standing with the profession became more assured. This mixed incentive gave the profession a number of excellent journals which it otherwise might not have had. Unfortunately for the profession, however, this, while an undoubted good, has proved also an unquestionable evil in that it has pauperized the profession. The profession has accepted, and has been satisfied with journals whose main purpose has been purely commercial. That the best of them have not intruded the publisher's interests unduly is freely acknowledged; nevertheless, that the profession in the United States is so wholly dependent upon those who cater to its material needs for its periodic literature, published solely to provide for a manufacturing establishment an advertising medium, is not conducive to professional independence and professional growth.

The apathy of the profession toward attempts to remedy

this, and the growing indifference of the profession to the gross violation of accepted ethics to which this dependence upon commercial interests for that which the profession should provide for itself has led, is somewhat startling. It has come to pass that members of our State and National associations have so far lowered their standards of professional dignity and of professional ethics, that they see no impropriety in depending upon commercial interests to finance their meetings, and to provide the attractions. They have become quite indifferent to the unethical surroundings this entails, the conspicuously displayed placards of proprietary preparations and dental cure-alls which announce to the public that a scientific meeting of professional gentlemen is in session. No wonder that the complaint is made that the dental profession does not command the respect that its importance and attainments entitle it to.

I do not contend that manufacturers' displays are out of place at these meetings. They are not. That the advances made in means and appliances are thus offered to compare and to judge the relative value and adaptability of the various offerings to one's personal needs is a sufficient justification for their presence. They should be there, however, by invitation, and should be subject to the same ethical rules the inviting association obligates its own members to observe. The selling of space, making their presence a matter of barter and trade, and lowering that which becomes an integral part of the meeting by right of purchase, to the level of a food show, is undignified and unprofessional. It is, however, but another step down, the natural outcome of permitting the trades people to have full control of the profession's periodic literature, and indicates a poverty of praise worthy *esprit de corps* incompatible with that manly independence, that professional dignity, the public, and our professional compeers have a right to exact from the dental profession, as the price of full recognition to professional honors and brotherhood.

A reform all along the line is needed. It will cost more—so does good and reliable dental work—it is, however, cheapest in the end. We thus contend with our patients. Do we believe and practice it ourselves?

It is high time that the profession in this matter returned to first principles, and owned and controlled its representative periodic literature. It will require courage, it calls for a generous contribution of well-earned cash, of time, of talent, of effort, and a personal sacrifice on the part of all who take part in the venture with no other object in view but the general good. They must emulate the example of Eleazar Parmly, Elisha Baker, Solyman Brown, and their coworkers, trusting that the effort to elevate and *reform*, will be as successful as was theirs to *found*, dental periodic literature.

WILLIAM H. TRUEMAN.

UNION MEETING OF THE ALLIED SOCIETIES

(Continued).

The societies then considered the subject of "The School and the Teeth" by Dr. Charles O. Kimball, N. Y.

THE SCHOOLS AND THE TEETH

or

THE SECONDARY SCHOOL IN ITS RELATION TO DENTAL HYGIENE.

DR. CHARLES O. KIMBALL.

When some years ago I was urging upon one of my somewhat reluctant young patients the duty of personal care of his teeth and trying to fix in his mind the relation between eating and cleansing the teeth, and asking him to promise me to use brush and silk after breakfast each morning, I was met with the startling statement, for he was attending one of the best of New England's excellent schools: "I cannot do that for I am not allowed to go to my room after breakfast." So I retired, obliged to admit that his guns commanded my position.

It set me thinking, and asking other boys and girls, and wondering what I could do to make clear to the minds of the teachers

that they were, as it seemed to me, failing in their duty. And when the notice of this meeting reached me and I was asked to prepare a brief paper, instantly it flashed into my mind that here was the opportunity I had been seeking. For we with our four societies fairly represent the best of dentistry in New England, and a reasonable section of it in New York, and if I can bring the force of your opinion and advice upon this subject fairly before the secondary schools, I am sure that no such answer could ever be given again from such a school.

This much by way of introduction. And now will you bear with me while I state as briefly as possible, and in untechnical terms, the position of modern dentistry on this subject, viz: the loss of teeth by decay and by their loosening.

Dental caries is fairly entitled to the bad pre-eminence of being the most universal of all diseases, as, to a greater or less degree, it exists in the vast majority of mouths and in most of the teeth in those mouths, and yet we are told that: "A clean tooth never decays." How can we reconcile these statements assuming them to be true. First by the definition of what a clean tooth really is—one that is kept entirely free from every trace of lodged foreign matter, a condition which upon a very brief thought is shown to be for some teeth almost impossible as regards, for instance, the minute fissures in the enamel, resulting from failure of union in development, which we know pass completely through it, and yet are too small to be completely cleansed without extirpation by filling or rounding out. I will therefore except these and place the responsibility otherwise. "A tooth if perfectly developed or if the fault of its development has been perfectly corrected by an absolutely sound filling, will not decay so long as it is kept clean."

But will such a tooth loosen and come out? I cannot give as yet the same confident answer, but there are those, and they are among the faithful ones, who "do the next thing" and do it well, who believe that the answer can be given in the same terms, that a clean tooth will remain firm in place to the end of life. I am not sure that this is true, but I know that the converse is, that an unclean tooth is in greater danger of loss by loosening than a clean one.

To keep teeth clean requires first regular, personal care, given at once; when the teeth are soiled; and second, regular

professional care, given as often as may be necessary to supplement the personal care and keep the teeth up to the high standard of absolute cleanliness. This time varies with different individuals but the general failure of the profession in saving teeth is due to failing in these two particulars, to a lack on the part of the patient of thorough and regular personal care, and to a failure on the part of the dentist in cleansing the teeth with sufficient carefulness, regularity and frequency to supplement the personal care and so keep the teeth absolutely clean.

But as my object in this paper is not to quicken your zeal in your good work, but to reach those outside our profession, let me pass all this and ask, in a very simple elementary manner: What should be the character of the personal care of the teeth? How often? When? How? Where? By what means shall we clean our teeth? And to these come simple answers. How often? As often as they are soiled. When? Immediately after soiling them. How? By any means that shall be effective and yet not injurious to teeth or gums. Where? On every part of the surface of every tooth which can be reached by air or water. By what means? By a clean, moderately stiff bristle brush for all surfaces that it can reach, and by waxed floss silk for the surfaces the brush cannot reach. By these means and in this way we can keep our teeth clean.

To be ideal this care should begin as soon as the tooth appears above the gum, for if intermitted for a brief time decay is liable to cause a broken surface which will effectually neutralize all your efforts at this point. As the temporary tooth should receive the same care which its permanent supplanter receives, the parent or nurse must begin the work, and by daily example, by careful teaching, and patient unwearied training so influence the young child that he shall form a habit of regular care. Thus the boy or girl grows until the first great break in life comes—going away from home to school. All recognize that this is a critical period, parental care and watchfulness are lost, what shall take their place, amid the confusing circumstances of the new life, who will see that the old habits are maintained? The teacher, who honestly and sincerely steps into the vacant place. When I think of the noble lives and high character of many of the men and women who have taken up this work in our secondary schools I see the reason for the success which they have in so many in-

stances achieved in developing pure, high and true characters in their pupils.

But coming again to the care of the teeth, how are the boarding schools meeting this test of their wisdom and efficiency. They are training the mind, watching over the morals, feeding the spiritual life, building up the physical life into vigorous strength, but how about the teeth, whose health will directly affect the physical life?

There are about one hundred and fifty secondary schools in Massachusetts and Connecticut; to each of these a circular was sent, asking five questions, conveniently arranged for a reply; answers were received from about seventy schools, some twenty of which proved to be day schools, and so out of the full scope of our inquiry.

To the first question, *Is there in this school any systematic effort to teach rules of hygiene of the teeth?* Of the day schools seven answered yes and fourteen no, boarding schools in about the same proportion. So that perhaps one-third of all the schools are giving, often in connection with their "Physiology" classes some instruction in the care of the teeth. But that is all. To the second question, *Is there any effort made to see that the pupils follow out such rules?* the response of the boarding schools alone was considered. Here the proportion was not quite so good, for thirty-six out of fifty over two-thirds did nothing, while four had advanced to the point of seeing that pupils cleaned their teeth "night and morning." Eight said yes unconditionally, and one said that pupils were sent to their rooms after every meal and then were watched to see that they cleaned their teeth. I would like to give the name of that school, for it seemed to me that it was doing all that it possibly could to give its pupils strong, sound teeth but I cannot, as all these answers were confidential. I found, however, one girls' school in New Jersey where the pupils are required to clean teeth with brush and floss silk after each meal, and a trained nurse is by to see that they do it. When it came to the third question, *Is full opportunity given for the pupils to clean their teeth with tooth brush, water and silk after each meal?* the proportion was reversed, for over two-thirds said they did, while nearly one-third said frankly "no," two of the best known schools taking the ground that the teeth were cleaned twice a day, morning and evening, as if they had in that fulfilled

all the requirements of hygiene. The fourth question elicited no information of value while the last question, *Is any care taken for the scholars' teeth?* brought out several interesting statements, for in nine schools there was more or less regular inspection of the pupils' teeth, in some, dental services were regularly employed to watch the children's teeth.

What does all this show? First that some schools are becoming interested, and are beginning to help, (a) by regular instruction, (b) by systematic watching, (c) and by planning so as to make care of the teeth by the pupils themselves easy and convenient. Second, that a greater number are quite indifferent as to instruction and still more as to endeavoring to train scholars in this particular, several of the most prominent only requiring care night and morning, but not allowing care after every meal except by special permission. Third, that many of the teachers themselves have a low standard of personal care, and so their training is ineffective, or by negation positively harmful.

Many dentists are now claiming that in the practice of orthodontia the years from 6 to 12 are perhaps the most important of all, as the developing jaws can then be made to develop on normal lines. Be that as it may, the years from 12 to 20 are probably the most critical in the history of the teeth in their individual relation to disease. How many times our sympathies are excited by seeing the irremediable loss incurred during school life; not only complete loss of teeth by extraction, but still more frequently the irreparable loss of strength of a tooth by means of a great cavity, burrowed out in each approximal surface, or by fissure cavities enlarged till the enamel cap is left a mere shell. We can save them, O yes! by extensive upbuilding, by large and disfiguring fillings, but the beauty and the strength of the tooth are largely gone forever, and this may have occurred in two or three years' time between 12 and 20. I have seen it happen in about ten months' time. And this critical time of life of the teeth is the very time when the young creatures, boys and girls, whose welfare is so close to our hearts and consciences, are placed in the care of the boarding schools.

Now, what can we do? How can this evil be remedied? Fortunately, we have at hand a powerful aid if we can invoke it, for the teachers of these young persons are men and women of high ideals, who have deeply at heart the true welfare of their

charges, and they will surely respond if we can reach them with an appeal which has reason beneath it, and authority behind it.

Here is our present rare opportunity; four societies representing perhaps 600 dentists, and these pupils for whom I plead are our professional children, whom we have watched from babyhood.

Let us as a united and earnest body of men make a direct appeal to these teachers, asking them to do two things: First, to provide in their instruction for simple talks on the care of the teeth, the reason for it and how to do it, and then to arrange the mode of life of the scholars, so that it shall not only be possible for each boy and girl to cleanse his or her teeth after every meal and before retiring, but taking advantage of the discipline and routine of school life, that it shall be seen to that the scholars do give this personal care at these frequent stated times, and so supplement the home training by the school training, establishing a personal habit.

I have prepared a brief catechism of dental hygiene which I offer as a suggestion. If it meets with your approval I should like to see it printed not over my name, but over yours, in the name of these four societies here in joint session.

I have also suggested an appeal to the schools which might be referred to a suitable committee, to revise or rewrite and send out, in such manner as they deem wise.

In conclusion, let me beg of you very careful consideration of the subject; it is a little matter, but it means much, extending over a long time. Who can tell how far our action this day may extend its influence, what blessing it may bring into the world, how far it may go towards helping to train up a stronger and better race of men and women?

If you can do this in the private schools you may expect it to extend to the public schools so that the teachers shall train their children to care for their teeth and so indirectly for their health. Booker Washington says that the first upward step is the use of a tooth brush.

Dr. Robert Whitehill, representing the Metropolitan District:

We are very proud to be gathered here to-night. We of Massachusetts are proud to be honored by men who have forsaken their practices for days to be with us. It seems to me

we should not go from here without making this meeting count for something vital on the question.

Dr. Kimball has shown us the need of following the early care of the teeth in later years when the children have passed from our direct care. We have at hand the remedy if we can invoke it. The most significant fact of Dr. Kimball's paper is that dentistry is speaking to the world. We are asked to speak to the world.

The members of each profession are daily dealing with the public individual to individual. The medical profession not only does the work of routine which falls to the lot of medical practitioners, but the medical profession is reaching out all the time in an effort to promote the public health in hygiene, etc. In saving teeth we are daily doing our duty, but we must also reach out in an effort to educate and instruct the public, that we may secure intelligent co-operation in this worthy work.

Dr. Charles E. Parkhurst, representing the Harvard Odontological Society:

Mr. Chairman, Members of the New York Institute of Stomatology of Our Allied Societies:

We have all been very much interested and impressed by this presentation of Dr. Kimball, and are in harmony with its suggestions. That which struck me most forcibly in the paper was the need of universal adoption and application of these suggestions.

The need of emphasis in the care of the teeth at this class of schools is certainly apparent, as we have all borne witness.

The doctor kindly furnished me with a brief synopsis of this paper some days ago, but it was not until I saw the paper in full the day before yesterday that I was made aware that his remarks were relative to our secondary schools alone. I took the subject to include our public schools, which are so lacking in their attention to mouth cleanliness. With this understanding I had made my preparation and consequently offer this excuse for my remarks, which may not be quite appropos to the restricted subject, yet I believe that they would apply to all educational systems.

Dr. Kimball's plan of work in explaining and advising the frequent thorough cleansing of unclean teeth and the education

of those to whom the children are intrusted is the practical way of accomplishing our purpose.

Oral hygiene in the public schools has been under discussion for some time.

In 1882-3 Dr. Parreidt, in Germany, and Dr. Ottofy, in this country, made the first examinations of students' teeth and tabulations thereon. In 1902-3 examinations were made in several states by certain individuals, and such have been made also in several European countries.

These tabulations, showing that 90 per cent. of the poor children's teeth are defective in the United States, 75 per cent. in England and 95 per cent. in Germany acquaint us with the deplorable condition of our scholars' teeth the world over.

The conditions existing, what can be done to better them? The solution is not an easy problem. It is to take a long time to get the remedy into working order. *Medical inspection* in the schools is a slow process. It is uphill work to impress upon those in the community connected with the cause of education that more time should be devoted to the subject of Oral Hygiene.

Nevertheless, though the task does not progress rapidly, there is a trend in the world toward the betterment of hygienic conditions.

Pure food laws, the suggestion of our own *Governor* that steps be taken toward the improvement of the surroundings for the health of factory children with an inclination toward tuberculosis, experiments in various parts of our country regarding the special education of defective children, all these steps are making for the uplifting physically of our social and working communities. In each one of these there is a connecting link with our own line of work.

The system of education is such to-day that with the excessive mental development does it not seem rational, as is stated, that the teeth, jaws and face are suffering at the expense of the brain? Our school committees, perhaps being made up of those exemplifying marked activity in business or education, and in many cases personally neglecting their own mouths, do not readily comprehend the need of much care of those organs coming under our control.

The entering wedge for the subject of Oral Hygiene in our schools may lie in revealing the fact that the unhealthy mouth of

the scholar may be directly responsible for the spread of contagion and infection in the community.

So, gentlemen, in this matter it is upon us as intelligent, up-to-date dentists, conversant with all that is best in our work, that the responsibility rests, and it is our duty to see to it that everything is done which is possible.

We must be the educators of the teachers of the scholars, of the public and of the medical practitioners, if you please.

You can but have realized the lack of knowledge which our teachers possess relative to dental matters. Many of their mouths are a witness to this truth.

We must talk more in our offices and instruct when some diseased condition presents itself. Facts regarding the mouth and associated parts, together with the sequellae of these diseased organs, are in the province of the dentists to elucidate.

While caries is a very important aspect as regards the health of the mouth, other pathological states are more important. Upon this side of the subject is there great lack of knowledge.

Did you read the editorial in the September *Cosmos*? It was the most convincing short article upon this subject which I have seen. I have read and reread it and placed it on my reception room table for my patients. I would that the public might have access to it. We should know and impart to our patients, teachers and others the supreme importance of healthy mouths that Oral Hygiene may of necessity become a part of our children's training in school.

The teachers are the instruments upon whom devolve the responsibility of the selection of suspicious pathological cases in school for our medical inspection, consequently their need of knowledge in this matter, likewise, also, their need of knowing the bearing the mouth and teeth may have upon the case in question.

Let the teachers and the public know that troubles with the eyes, one-fourth of all earache, throat and nose troubles, tuberculosis of the lungs, adenoids to which it is said 90 per cent. of the children of New York are suffering and to which 50 per cent. of all deafness is due, facial neuralgia, influenza, blunted mental activities, backwardness at school, diseases of the nervous system—that all these may be closely connected or originated from unhealthy mouths.

Let it be known that: There is a more or less marked ratio

between the physical soundness and the mental acuteness of the child and the conditions of the teeth; that dental pain causes more suffering to the human family than any other disease.

Let it be known that extracting should never be resorted to except in positively unhealthy, unsalveable teeth. Let the importance of frequent daily cleansing on the part of the individual and periodical cleansing at the hands of the dentist in order to keep the teeth from decaying and the tissues healthy be told again and again.

Dr. Kimball has spoken of the dental primer. This is a splendid idea, and should have endorsement. School physiology should have a larger part devoted to this subject, and written by a dental practitioner and not by a practitioner of general medicine.

As is being done in the course of free lectures at the Harvard Medical School, Oral Hygiene as portrayed by one of our capable practitioners should have a place. Dr. Lavett, in his talks relative to the health of school children, says:

"It is a question whether defects of the eye and ear, of malnutrition, etc., are not as important as book learning, and if one has to be sacrificed, which should be the one? The chief objection is the conservatism of the community. We have, therefore, to be very patient, very conservative, ourselves, in hope for the day when people realize that the conditions under which their children go to school are as important as their drinking water and their plumbing."

These, gentlemen, are some of the thoughts which have come to me regarding the schools and the teeth. I have stated my reason for the digression from the subject, and yet be the school at our next door or in another city; be our children here or there, our aim in all events is the same; namely, to prevent decay and other oral disorders by emphasizing the means of avoiding them.

In the fulfilling of such a mission we can lay claim boldly to a place with general medicine in helping to bring about the well-rounded-out physical type of humanity, fitted to cope with the many struggles of life. I thank Dr. Kimball for this paper and for opening up this new field of work.

Dr. John F. Dowsley, representing the American Academy of Dental Science:

I feel that Dr. Kimball's paper should treat of the children of the masses rather than the children of the classes. It is these children whom we should deal with, for we shall have these for our future citizens. We have 100,000 children in attendance at our public schools and 8,000 in the private schools, and in addition the parochial schools.

The private schools are usually supported by rich families. To show you that the things we are interested in are already on the way, I will read you a few statistics. In 1894 Germany established a dental clinic as a feature of the public school system. In England 38,000 school children were examined and a very large percentage had defective teeth.

In Prussia the large majority were affected by caries. In one of our Massachusetts towns an examination was made, and 95 per cent. of the children examined were affected with caries. I am well aware of the great work that is done by the colleges. I speak of Tufts and Harvard Colleges.

Here is a note relating to the Tufts Dental School:

The Tufts Dental School takes care of many thousands of the public schools children's teeth in the course of the year, and I do not doubt that the Harvard School does the same thing.

In one of our public schools the children had to write a composition and the subject was: "What would you do with \$50,000?" One would buy a piano, another would purchase a few frocks, a boy would immediately invest in an automobile; but there was one letter that interested the teacher from a little girl twelve years old.

The little girl twelve years of age said that if she had \$50,000 the first thing she would do would be to have her teeth fixed.

That little girl is now receiving the best possible care at the Tufts Dental School.

A question discussed recently was: "How should the children be treated to insure a healthy mouth through life?" The consensus of opinion is to emphasize the importance of something being done in the way of training the children in this direction. Now, the teachers can do nothing because the schools are crowded. The child is sent home for dirty hands, but the clean mouth is not considered. Last year a committee was present in the Legislature considering the medical examination of children in the public schools.

That committee called in several gentlemen of high standing for their opinion. Among these several dentists were called in to get their opinions and ideas as to how the examination could be made. There was something in the air with regard to extending this to include a dental examination.

Everybody recognizes that this must come. And how we are going to accomplish that work is to get in some way in touch with the children of the public schools, because these children are going to be our future citizens. While it is fortunate for a child to attend a private school, yet the great majority are in the public schools. I hope these societies will make some expression that will reach the subject.

Dr. Davenport:

Mr. Chairman and Gentlemen:—A last word. It is easy to tell a Boston man, but you cannot tell him much. And now, gentlemen, we need your personal support for this new Journal. We need the support of your papers and your discussions to give strength to this Journal. The members should publish their papers before societies which publish their proceedings in this Journal.

And now, gentlemen of the Allied Societies, we are certainly grateful to you and feel that we should meet at least once a year. In emphasis of this I call for a rising vote of thanks for our hosts from the gentlemen of the Institute of Stomatology.

CRITICAL COMPARISON OF METHODS IN ORTHODONTIA.*

BY ALFRED P. ROGERS.

The word critic in itself is very apt to convey an unpleasant impression, because it suggests to us a spirit of fault-finding, and for that reason carries with it an air of unpopularity; but in applying the methods of critical comparison to orthodontia the writer has no intention or wish to be critical in the sense often conveyed in the word, but shall duly define what he means by criticism and shall strive to apply the methods according to the definition.

(* Read before the American Academy of Dental Science, March 6, 1907).

The present is a creative age in orthodontia, and with this creation and progress naturally comes criticism. It is an essential or else we would allow our theories and practices to run away with us. As progress advances it is as divergent as the minds of the men who are behind it. At present critical methods of various kinds are at work along the line of progress, and well and proper that they should be, because our magazines are full of opinions, impressions and guesses, which are oftentimes accepted by the thoughtless and superficial reader as fact and principle. Therefore, the present demand for criticism is so incessantly met with that we cannot have too much of the proper kind. It is not a hard matter to discern the value of true criticism, for it can be easily seen how it may in many cases act as a tonic or corrective, and when it fulfils its mission, well, it is of value in overturning prejudice, in tempering the too radical, as well as awakening the too conservative. We regret that sometimes unworthy motives such as greed, prejudice, hard and fast notions, or a defense of one's own cherished methods give rise to the unworthy sort; but this kind should be weighed and found wanting as surely as that which is promoted by any unworthy motive.

One of the greatest aids to criticism is the habit of comparisons in principles, in methods and results. This habit, which we employ frequently in the smaller and less important acts of life, is less easily employed when we are confronted with the larger and more intricate problems. Analysis and classification are essential to the truest comparison, and in the degree that they are mastered will the criticism be of value. The critic's mission should always be to elevate the standard of his profession; first, by eliminating error, then by rebuking those whose sayings tend to exaggerate or to cast personal reflection; in a word, he must be able to determine what is good and what is unworthy.

Through the past years many noble efforts have been made to place the practice of orthodontia where it should be, and there is a long list of names of those whose efforts must not be forgotten, nor must their ideas be cast aside as worthless, for they have served their time and some are still serving, and have and are giving us much to build upon. Many of their ideas we are advancing to-day, but in new clothes, or we see them in a better light and regard them with a clearer understanding. It is well then that we recognize the efforts of all these men as worthy

although many times misdirected, and instead of building upon their ideas as blemishes or mistakes we shall regard them as steps by which we have ascended to our present position of knowledge and practice. It is true that many of these ideas, when employed to-day, we must condemn; because they are proven inefficient when measured by present day standards. We have yet undoubtedly much to learn, but we look into the future with hope and confidence that the next few years may be as productive as the past.

Should the sole authority for every observer in orthodontia be his own judgment, it is quite evident that we must have a great diversity of opinion and criticism. If we are to allow personal feelings, prejudices, etc., to enter into our work to any appreciable extent, then there is no likelihood of ever securing uniformity of judgment. Then to obviate this tendency we must as nearly as possible stand upon a common ground, that our prospective may be the same. Even then slight differences may occur, as no two men's physical eyes see alike, much less the mental; yet a common ground must be found. Frequently the utterances of one school or party are an immediate incentive for another to declare an opposite verdict and to prove to his own satisfaction at least that his adversary is entirely wrong. We have seen and heard much of this kind of criticism, and surely it is the least profitable; indeed, it is entirely waste, and I believe it will continue as long as men judge by false standards or principles. I would not seem to infer that every man has not the right to his own opinion, but opinion is more worthy when based upon common and unchangeable principles. It is undoubtedly true that a larger spirit is what is needed, and is what I believe we shall have when the unusual progress of the past few years is studied and understood, when all orthodontists get into line and accept a fundamental principle from which any divergence must be along definite and well-understood lines. In looking over the field of past achievement, and studying what was accomplished, with what pain, inconvenience and imperfection, we cannot but contrast them with present day accomplishments, and in doing so we cannot fail to remember that although the past and present intermingle somewhat in present day practice, a clear mark of division is discernible, and one can easily perceive where progress really began. Old methods busied

themselves with forms, appliances and the study of every case as new and unlike all others. Modern orthodontia classifies and places in families all forms of malocclusion which classification first seeks the fundamental laws. It classifies and groups into a limited number of classes which are at once so convenient, clear and logical that any thoughtful mind can soon conceive their clearness and consistency, and when once mastered, there is open to his consciousness a broad, clear and definite view of the whole field of malocclusion. Thus step by step the work has advanced. Its inheritance from the past is in a great measure its strength for the present and the future, its progress during the years that have just passed is its most notable feature. Its practice can no longer be undertaken with an individual standard, but must be undertaken with full understanding of the fundamental laws. We have found that there are tests better and more sure than popularity. The multitude may run hither and thither in search of that which is most easily mastered and which promises results but eventually they must fall in with the natural growth following the acceptance of the fundamental. The preception of a few underlying principles shall, I believe, tend toward unity of practice, and eventually produce a uniformly high standard of achievement, and every one who wishes himself to be efficient will be drawn into the system that centers around these principles. "Or else he may, if he prefer, take chances as an accentric, subject to no regulation that has been discovered save the somewhat doubtful one of being a law unto himself."

We find in talking with many upon the subject of orthodontia a great tendency to get away from the fundamental. The conversation usually drifts to appliance of one form or another, and the criticisms of the various appliances furnish a fair estimate of one's knowledge of the working principles. Criticism is sometimes heard relative to the so-called ready-to-wear appliances, which to the author's mind do not exist. It is quite true that appliances may be secured; but they are in no sense ready to wear, requiring much skill in adaptation and alterations and many additions before they can be of practical value to the operator. Let us first endeavor to get beyond the consideration of appliances merely, and establish broad and well defined principles such as have been voiced by those whose attainments entitle them to speak with authority. The fundamental principle, that great

law which is now so universally accepted, the law of occlusion, is the first principle for our consideration. Together with the consideration of occlusion we must recognize the great importance of harmony in the size and shape of the arches. The method of determining the same, as given by Dr. Hawley, of Columbus, Ohio, can now be accepted as a principle which has been tried and proven to be accurate and reliable, so that when we apply it to a given case we have a diagram scientifically correct, showing us the position which each tooth must occupy. Again, in considering the principle of occlusion we must, of course, imply a correct mesio-distal relationship of the arches, and harmony in the facial lines. The establishment of these conditions in a given case of malocclusion, then, must be the goal of all our endeavor. Many systems and methods are before the profession at the present time. It is for us to determine which of these will best serve our purpose, or if a combination will prove more adequate in these cases. In looking over the field of past endeavor, one is impressed with the innumerable appliances that have been used for the correction of various forms of malocclusion. It is true that many very ingenious and wonderful appliances have been produced, but a very superficial study soon convinces us that the authors of many of these were shooting at a target that could not be seen. Here and there we find an idea which seems to have a kernel of truth, and fortunately for us these ideas have been adopted by modern orthodontists and gradually and carefully improved and carried to a state of high efficiency; but this progress did not assert itself until after the acceptance of that great law of occlusion. After the acceptance of this principle, light began to dawn and rapid strides have been made in the years that have followed. In the study of the various methods in vogue to-day, it seems to me most convenient to define them into two classes, the one which makes use of the expansion arch and are usually as fixed appliances, and that which avoids the arch and may be termed removable appliances. The first must be subdivided, as there are a number of methods by which the expansion arch may be used.

Those methods usually employed by Dr. Case, of Chicago, often fail to attain the ideal in that the principle of occlusion is not tenaciously adhered to when the treatment of certain cases

of class two or class three are undertaken; thus, although we may attain a fair or debatable result from the esthetic point of view, the restoration of type is made impossible, and the attainment of ideal occlusion is lost. It is to be regretted that extraction forms so prominent a part of the treatment by the methods employed under this system, but as it falls far below the attainment of the ideal, we must condemn it on this account alone. It must not be supposed that all the results attained by this method must be criticised, because undoubtedly the ideal is often attained, where extraction has not been resorted to; but the results are so often below the standard set for this discussion that we are compelled to make exception. The employment of the contouring apparatus does not seem to have the advantage claimed for it when the efforts are directed toward ideal occlusion and the restoration of type. Cases are on record which show us very truly that by the force of properly adjusted inclined planes and the influence of stimulated development, the roots are soon guided into their correct position and the contour of the face is accomplished without the necessity of the application of so complicated an apparatus. Especially is this true when the cases are treated during the very early stages, and when the teeth are simply guided into their correct positions during the active period of bone development.

Another method in which the expansion arch method forms a prominent feature is that which has been given us by Dr. Ainsworth, of Boston. This method, although applicable to a limited number of cases, most often where expansion is demanded in the bicuspid region, is of value for very many reasons. Chief among these is that when skilfully applied it becomes automatic to a degree wished by the operator; thus in cases where it is difficult to see the patient frequently, the arches may be widened and retained in their position by the same device. One disadvantage it seems might occur when the unequal expansion of the arch is desired, or when one side offers greater resistance than the opposite. However this may be, I consider this method a valuable edition to the methods in orthodontia when we are endeavoring to reach the ideal in cases where it is well adapted. It seems that this automatic appliance proves most valuable in those cases of the two classes where little or no torsal occlusion of the teeth occur, and when the permanent

teeth are all in place. It is not so easily applied, however, during the very early stages of malocclusion, which makes the method one which cannot be considered complete; indeed, the author of this device does not claim for it more than it is plainly desired to accomplish. There are a number of auxiliary attachments which may be employed with this device, notably the intermaxillary elastics and the inclined plane, which plane is valuable in some cases in establishing the correct mesio-distal relation in cases which are bilaterally distal as well as in depressing the lower incisors which so frequently elongate for lack of anterior occlusion. Another reason why we cannot consider this method as universal in its application is that frequently we meet with cases where the molars are in need of rotation before the occlusion can be restored, or where it is imperative that they shall be tipped distally by reason of a mesial movement brought about by the too early loss of the temporary molars. When much rotation of the bicuspids or the six anterior teeth is indicated the method then loses its advantage of being automatic for any length of time, and the patient must be cared for once or twice a week, as is usual with other expansion arch methods. For the depression or elevation of teeth I believe it cannot be successfully employed.

Another method in which the expansion arch comprises the most prominent feature is that which is given to us by Dr. Angle, and for which he does not claim originality, recognizing that the arch was in use long before his time, but to him is to be given the credit for its improvement and specialization. The methods used in the employment of this device, which have developed those methods used by what is now termed modern orthodontia, make it by far the most universal in its adaptation. Indeed every known movement may be accomplished by their employment, and the ideal is so often attained by those who understand its application that it must receive the stamp of approval, and must win the respect of all who give it intelligent and careful thought. Sometimes we hear criticism of appliances advocated by this method, but it is the writer's observation that the severest criticism usually comes from those who are least acquainted with the principles of its adaptation, and reflects more seriously upon the knowledge of the critic than upon the particular method. We must not assume, however, that these methods are faultless,

that would be unreasonable in the extreme, and would indicate that progress was at an end. There is still room for improvement and a fertile field is open for those who wish to think and work. In the adaptation of any appliance where unusual soreness or inflated conditions of the soft tissues result, it is not to be taken as an argument against the use of that particular method, but as already intimated, an argument against the skill in adaptation, adjustment, and limiting power displayed by the operator, as well as a lack of appreciation of applied force and the law of compensation. We have often heard it said, "That the slovenly workman blames his tools," and this undoubtedly applies to the orthodontist as effectually as to the carpenter. In our endeavor to attain the ideal, it matters little to us from whom we derive our ideas or methods so long as they prove stepping stones in our attainments. Therefore, in casting a critical glance across these various methods, it is my intention to condemn only those which fail to reach the standard outlined, and to speak in praise of any methods that will help carry us toward the attainment of our purpose. Just now I am reminded of various instances where the faulty adjustment of appliances has amounted to little less than carelessness. It is very true that those forces which serve us best in the hands of the skilled are in the hands of the untrained the most dangerous. The drugs which are of the greatest service to the intelligent physician are often times deadly poisons. That mysterious power of electricity; that force which enters into our lives so effectually to-day, is an element of death where ignorance or incompetence is in control, and with many of our appliances, unless they are well understood and under control they may become instruments of cruel torture, failing utterly to accomplish results designed for them, and winning the disapproval and condemnation of those whose misfortune it is to be most concerned.

I am now going to pass on to a brief consideration of those methods which discard the arch and are known as removable appliances. Many of these are now in such disuse that it seems that their mention is hardly necessary in this brief criticism. Those that have been most prominent in the profession are known as the Kingsley split and spring plate, the Shaw plate and the Jackson plate with springs, which is now discarded by its author. That method of removable appliance which is most

widely known to-day is that introduced by Dr. Jackson, of New York. You are all doubtless familiar with the working principle of this system. The author in his work first depends upon a palatal and lingual wire, which he terms the body and from this base arms and fingers are projected in order that the arch may be widened by a spring pushing movement. The author claims some of the same general basic principles that we have laid down as a standard, and his work can best be judged by comparison of results. This removable system has advantages and disadvantages, for the reason of its being removable, which are so easily discerned that we will not take further time in their enumeration. This method has the disadvantage over the expansion arch in not being as suitable for the rotation of molars or bicuspides, and again the application of intermaxillary force is limited. It would be difficult to move a section of either arch in the effort at placing the arches in perfect mesio-distal relation and in procuring the most worthy facial results. Yet again, in closing an open bite, it would seem difficult to construct a removable appliance that would be suitable for the work. The grinding of the molars and the use of the chin-cap are recommended under this system, but these ideas are not abreast with modern orthodontia, and therefore cannot be recommended. I have no doubt that these disadvantages may be stoutly denied by those in the height of enthusiasm; but I am quite confident that fair tests will prove the truth of my criticism. It is true that bicuspides may be rotated, but not with the same facility given by the expansion arch method. As a retaining device, I can conceive of a number of cases where this method could be satisfactorily used. It is beyond doubt that the author of this method accomplishes many difficult movements, but the method lacks that quality of being universal in its application. The system is well worthy our study and must be given recognition as embodying many useful and suggestive ideas. This author falls into the same grievous error so often noticed, in thinking that his method is all well and sufficient, and leaves the impression at least that there is nothing in the other man's ideas worthy a place as compared with his own. This tendency is, of course, natural, but how much better would we appear before the professional world if we all were willing to give the other man courteous consideration and credit. No one

man is going to build a perfect system of orthodontia in himself, and he who is most receptive and gathers the ideas of many others improves, shapes and simplifies, then gives them to the world, is the man who is doing not only the greatest service for his profession, but for humanity as well.

I have sometimes noticed in listening to a comparison of one method with another that either by intention or through ignorance a misrepresentation of the true facts regarding the methods scored. This to me is regrettable and most disappointing, and on one notable occasion brought my sending admiration to a sudden standstill. These subtle thrusts to gain favor in the eyes of the profession are regrettable. I have taken pains to notice this advantage, and not always, but often, I have been startled by hearing a comparison made between a perfectly adjusted appliance of one method with an ill and bungling application of the other, and as so many are familiar with poorly adjusted appliances the criticism usually has the desired effect.

Those methods which are most prominently before the profession have all been alluded to and given as fair and impartial thought as has been possible. Let us briefly sum up the situation. In doing so I can only say that no one method is ideal in every case, that we must, if we wish to be broad and progressive, adopt the best from all, even if some have but little to offer. It is quite true that the methods now in use by the modern orthodontist are accomplishing the most satisfactory results. They are restoring occlusion without extraction. They are restoring type and developing the facial bones, as well as greatly aiding the rhinologist in his efforts at improving nasal respiration. Indeed, the results are in very many cases ideal. What is most needed is the shortening of treatment, the gain of absolute freedom from discomfort and permanency and surety of retention. The ideal must be our goal. We may not be able to attain it always, but in this as in all other effort, the attainment is great according as the ideal is high.

LOCAL ANESTHESIA.*

BY R. H. M. DAWBARN, M. D.

There is a growing interest, observable by every man of our profession who is attentive in the study of the topic upon which you have asked me to speak to you to-night. Not in this or that specialty only, but also in general surgery, under minor anesthesia of various kinds, a distinctly larger number of operations is being performed to accomplish avoidance of pain; but as "all roads lead to Rome," so we may say that all these differing methods have the one thought in common as their main attraction—that they do not compel a forced unconsciousness. Just as most people dislike the thought of death—at least of their own death—so they, or at least an enormous majority of them—object to the thought of being compelled by any drug into a temporary death; only differing, so far as their consciousness of self is concerned, from the inevitable end, in its brevity. And it is small comfort to point out to one's self the fact that really some as yet unknown chemical which we form in our blood, in course of each day's work, anesthetizes us—puts us to sleep by that drug—very much as with ether or chloroform. Neither do we enjoy the prospect any more even after reading statistics pointing out how exceedingly safe are these medicinal blessings, when administered by an expert.

I have said "one's self" and "we," for, apparently, so far as my experience enables me to judge, doctors are pretty human, and, as a rule, will delay much needed operations, or do almost anything to avoid general anesthesia, when they themselves are to be the patients. This repugnance is almost instinctive. And if it can be shown that most operations classed as major ones can be performed with comfort to the conscious patient and with a safety no less (perhaps even greater because operation is permitted so much earlier) than the safety when compared with that from major anesthesia, then there are reasons in abundance for choosing the minor means even in our major work, save in a rather small and well understood list.

One of the chief advantages is the opportunity given the conscious patient in some unusual condition—some unexpected

(*Read before The New York Institute of Stomatology, March 5, 1907.)

discovery during a laparotomy, for instance—to choose for herself whether a diseased organ shall be cut out or not. It removes a heavy burden of responsibility from the surgeon, placing it instead where it belongs. The surgeon will offer his advice—briefly and in simple, non-technical language—and no longer will the patient have a good excuse for a suit against an operator who did, or did not do, what the sleeping patient would have wished.

There has been, however, from the first one strong ground of objection to major operations upon subjects who are awake. That is the fact that the active, agitated, anxious mind of the subject often is capable of afflicting a very real injury, while the operation is proceeding. Just as hearing bad news will sometimes cause enough shock to kill upon the instant, so, to a lesser degree the terrified imagination of a patient can cause a degree of shock, less, doubtless, than in the extreme instance just given, and yet severe enough when added to the shock inevitably consequent upon a grave operation in certain regions, to produce a fatal results. Whereas, without the mental injury—that is, assuming that the patient had been asleep under ether, for example—the shock would not be so great, and the patient would very likely recover.

If these premises be admitted, it follows naturally that to overcome the one serious objection to major work upon a conscious patient, we must prevent any real anxiety—any fright—any imaginative magnifying of dangers by the patient during our operation. Fortunately, it is not difficult to do this. Many operators have long realized the extreme importance of this point, and have taken effective precautions. But I think it is only latterly that the bulk of the profession who operate are thinking of this.

For many years past the speaker has adopted the following routine. At least one hour before injecting, and operating, let us give the patient by mouth a drink of whiskey, averaging an ounce and a half. (With a habitual drinker, of course, more is advisable.) At the same time, by needle, we introduce a moderate dose of morphine, say 1-6 gr., guarded by atropine, 1-150 gr.

As a result, the patient undergoes the necessary cutting in a frame of mind in which fear is quite absent. He commonly feels distinctly cheerful. His mental pictures are the reverse of ter-

rifying. In a word, the chief danger, herein discussed, no longer exists. And, very fortunately, all three of these drugs just named is an excellent antidote to cocaine, should this be used in excess. However as to this, more and more surgical work in general is being done under a dosage of one-quarter of one per cent. of cocaine, or even less; often far less; and poisoning is, therefore, quite out of the question.

Where an objection on principle, or otherwise, exists against the use of alcohol, hyoscine in dosage of 1-100 grain hypodermically, acts quite similarly, the patient being very calm in consequence—often even in a light sleep during the operation. With this many combine the same dosage of nitroglycerin, because, like alcohol, it dilates the blood-vessels of the brain; their contraction by cocaine depriving the respiratory centre of needed blood, being really the chief objection to or danger from this analgesic, when used in dangerous amount.

It seems best, in the short time proper for me to address you, with other speakers upon this topic to follow, not to attempt a thorough enumeration of all means of accomplishing local anesthesia, but to limit my further remarks to two or three chemicals only. First, a brief study of cocaine. The smallest fatal dose of this, in the case of a healthy adult, so far as I know, was one grain; but it is possible to do almost any operation with absorption of much less. Two methods are used as to dosage. To render the skin insensitve we should inject into it—*not under it*—a solution in water or in “normal salt solution” (which is, in mankind, nine parts of table salt to one thousand of water) rarely stronger than one fourth of one per cent. This promptly turns the part so treated almost white; and then cutting is done in this pallid, insensitve skin. Deeper work needs only one-tenth of one per cent. on an average, and often operators use even less. Water itself has analgesic properties, as was noted even in the last edition of Bartholow’s *Materia Medica*; article “Aqua-puncture.” But even such weak proportions of cocaine added to the water as those just mentioned do act better than water alone.

The second way to employ cocaine is the reverse of that just studied, as to dosage. In certain nose operations, such as sawing away an obstructive turbinated bone, or a spur from the septum, many operators prepare for this by packing in absorbent cotton pledgets soaking with 25 per cent. or 50 per cent., or even

greater, strength of cocaine in watery solution. Some even use the drug itself, in fine crystal, or powdered. The point is that such concentration causes the blood vessels of the mucous membrane so treated to contract almost instantly to such an extreme degree as to be utterly incapable of allowing any fluid at all to pass through them into the general circulation. One may say, here, as with Marsden's arsenical paste used to destroy skin cancers, that the stronger the safer; for, with the cancer-paste, promptly on contact a dead layer of flesh is made to intervene between the poison and the living tissues capable of absorbing it. (Of course I am not intending to imply, however, that the cocaine used as just stated is destructive to tissue.)

Some use, before or with the strong cocaine solution, in nose work, adrenalin chloride solution, to aid in vessel contraction, and to maintain it a longer time than with cocaine alone. This leads me to remark that Dr. Meltzer of this city proved experimentally some time ago that adrenalin, in conjunction with many drugs which physicians employ—cocaine among them—causes their desired effect to begin more slowly, but also renders elimination slower; therefore, its addition is desirable by prolonging the anesthesia in certain regions—the mouth, for example—where one cannot hold the cocaine from escaping, as we do by cording in limb operating.

I have mentioned the means, as to dosage, of avoiding cocaine poisoning. Let me again emphasize the *prevention*, rather than cure, by using certain remedies an hour beforehand, as already studied. For dentists, who might occasionally be met by the patient's objection to taking anything not prescribed by her physician, I would suggest the advisability of the specialist's having a talk with this doctor, who will doubtless give his approval after an explanation is made; and, again, it is best not to tell the patient what drug is to be used to prevent painful dental work, lest this knowledge be a first step toward forming a habit. It should be possible to grant the patient satisfying and courteous information, leaving her as wise as before.

It is important to understand how to render sterile your cocaine solutions. By aid of adding carbolic acid, or boric, etc., etc., one may, of course, prepare solutions which will "keep"; but the better way is to make your solution fresh each time—and if done as presently to be described, this is both

simple and quick. Remember that a cocaine solution with a sediment is dangerous. It will usually be found composed of microbic detritus, and invites infection and suppuration.

From the chemist of Merck & Co., the well-known firm of Darmstadt, I have learned that, at sea level (for example, in this city) cocaine in watery solution decomposes only when heated to exactly boiling point—212 degrees Fahr.—or higher; but is not decomposed at any point even the least lower. If it were to be so broken up, the resulting products, several in number, though somewhat analgesic, are distinctly less so than cocaine itself: hence we avoid this.

My own custom is as follows: Obtain from any first-class maker a tube of hypodermic tablets of cocaine muriate, each $\frac{1}{2}$ gr. These are made most carefully as to cleanliness, for no firm wishes a ruined reputation by reason of causing hypodermic abscesses! However, to be additionally sure, let us boil the desired amount, say 100 minims of water or of normal salt solution, in an ordinary test tube over an alcohol flame. Upon removal, as soon as bubbles cease to rise—that is, in a second or two—the temperature will necessarily be a shade lower than 212 degrees F. Now drop in the $\frac{1}{2}$ gr. tablet, and the heat will still suffice to sterilize it, though not to decompose it.

This may, perhaps, be as appropriate a place as any to say what seems to the speaker a most important thing in addressing an audience of your specialty; namely, that I am convinced that more and more our nation are becoming neurotic, growing, for one evidence, distinctly more sensitive to pain; and those dentists who, recognizing this, aim determinedly at the goal of painless excavating, filling, etc., etc., are the only ones who will not find many of their patients drifting out of their hands—at least, unless kept by ties of old association, personal affection, and so on.

Of course, I realize how many efforts have already been made in this matter. But as to cocaine, you are working, in the main, in violation of one of the peculiarities of the physiological action of this drug—namely, that its benumbing power never works backwards toward the centre, at all. For instance, if I were to inject a strong cocaine solution into the ulnar nerve at the elbow where it forms the “funnybone,” I could presently cut distally at any point supplied by it, painlessly; for instance, could so am-

putate the little finger. But I should not get the least benumbing effect *proximally* from that injection point at the elbow; not the smallest distance, even. Similarly, when cocaine is applied by you to a cavity, even when high pressure is used to force its solution deeper into the tooth substance, the result is but unsatisfactory, and a very little excavating brings you beyond the benumbed region again. The reason is plain. And I am convinced that the method of the future is to be the employment of cocaine in weak solutions (or, perhaps, tropacocaine, which has advantages), probably *plus* the addition of a little adrenalin solution, by use of exceedingly fine and slender hypodermic needles, probably platinum for choice, of differing curves and lengths; and by aid of the hypodermic syringe, slowly introduce the drug between tooth and socket, advancing only after benumbing, until at length the root above the apex is well cocainized.

I have written, a good many years ago, upon the other ways whereby the teeth may be, for a short period, made insensitive. For example, applying a flat pledget of cotton, wet with, say, a 2 to 4 per cent. cocaine solution, to the floor of the nose, at the front, on either side of the septum, will in a few minutes distinctly benumb the incisors, and sometimes the canines too. The upper teeth further back can be similarly affected by injecting a cocaine solution into the antrum. In many people the natural opening into this cavity may be seen by aid of a nasal speculum and a forehead mirror, and the solution is injected through this by a long, blunt, and slightly curved, hypodermic needle. The other way is by use of a short, stout needle, to penetrate the exceedingly thin bone just above the alveolus, at any point on the front wall of the antrum, and then inject. Until this is tested one would hardly expect to find the bone so readily pierced as is the fact, save in those who may chance to present a bony abnormality.

To remove the cocaine solution from the antrum it is only necessary to direct a vigorous blowing of the nose. This, by forming a partial vacuum within the antrum, caused by the rush of air past it, is the natural means of freeing this cavity of mucus in excess, etc.

As to cocainizing the lower teeth along similar lines to these just studied in the upper jaw, we may by opening the mouth widely readily pass a very long hypo needle between the zygoma and the bottom of the sigmoid notch of the mandible, and with

but moderate anatomical knowledge inject a syringe of solution in contact with the inferior dental nerve. This may also be done from within the mouth (i. e., benumbing this nerve just before it enters the bony canal. At the mental foramen, if we locate it exactly, an entering needle can inject cocaine solution and so stop sensibility of the ant. bicuspid, canine, and incisors of its own side.

I wish to state as distinctly as possible that I have no thought of advising any of these plans (except anesthetizing the nerves at the apex of the root) for general dental use. In case there is an ulcerated root, or a local septic condition of the tissues about a tooth, the passage of a needle through this microbe-infected region would open fresh avenues for spread of sepsis; indeed, it might well do more harm than good. In such cases, if for any reason a short period of tooth-anesthesia is desired, the means just described whereby to effect this, for both upper and lower teeth, seems worth knowing, and its employment justifiable; while the injection by needle through microbe-poisoned tissues would not be so.

There is a modification of cocaine called tropacocaine, an alkaloid obtained chiefly from the small-leaved coca shrub, of Java, which the speaker has used only in intraspinal injection. To amputate a thigh painlessly, for instance, and at the same time and by the same means, to prevent, in many cases, shock from developing, is a distinct advance in technique. The drug so used blocks for a time the afferent impulse which otherwise, at the instant of severing the sciatic and other nerves, would strike such a blow at the vasotonic centre in the brain as perhaps to induce shock; which by this nerve-blocking we may avoid. When in such lumbar puncture work we use cocaine, about one-third of a grain represents perhaps a customary dose to benumb the whole person of the patient up to the waist or thereabouts. But very usually, within the first ten minutes after its introduction, the subject breaks out into a cold sweat, is nauseated, and has for a brief time a feeble pulse. This condition quickly passes away and does not commonly recur; but it constitutes a serious objection to cocaine used in this way. And tropacocaine, in my own experience, as yet never caused such symptoms. For intraspinal work it is now considered distinctly preferable; and either it, or a synthetical anesthetic called alypin,

is used instead. In all probability tropacocaine would be more desirable, too, for use everywhere in surgery. It has but one objection—its comparatively high price. It is imported in little bottles of fifteen grains each. Differing from cocaine, its solution may be boiled freely without decomposing. It is weaker; a grain of it has about the same effect as one-third grain cocaine. It is less of a depressant to the heart than the latter. Its preventives and antidotes, as to possible overdosage, are precisely those of cocaine.

The only remaining one of a list of drugs employed as local anesthetics which I shall take your time to mention is eucaine. This synthetic substance is freely soluble in water, and is much less poisonous than either of the analgesies I have just discussed. Two or three grains of it may usually be absorbed into the circulation without unpleasant symptoms. In excessive dosage general circulatory stimulants would meet the indications. This drug is much weaker in equal doses than cocaine or than tropacocaine as an anesthetic.

In a four per cent. strength I have once caused sloughing by injecting it beneath the skin. But two per cent. in water or in normal salt solution is devoid of objectionable irritation. There is but one operation in all surgery in which the speaker employs eucaine at the present time. That is tonsiotomy. In the adult one does not need ever to use major anesthesia for this; and cocaine has the serious objection that when injected by hypodermic into the tonsil and fanceal pillars until the operation would be painless, its striking power to contract blood-vessels manifests itself promptly, thus reducing for the time being the size of the tonsil. And next day the operator will be disgusted to find that a large part of what he wished to excise remains to cause further annoyance. But eucaine has no such power over the blood-vessels. The tonsil, after receiving at several points deep injections of a two per cent. solution remains unchanged in size, and may painlessly be ablated.*

* As to *bloodless tonsillotomy*, upon those in whom the operator fears loss of blood, the reader is referred to the author's method as published in the *Medical News*, May 20th, 1899; also, as to false tonsils (adenoids), the *Philadelphia Medical Journal*, July 8th, 1899. It is a method of prevention of hemorrhage when (chiefly in the adult) one has reason to fear this. It is best employed under ether or chloroform, however.

In conclusion, let me refer briefly to a recent editorial by Dr. Kirk in the *Cosmos*. I have already answered one point raised by him, and as to it would say once more that we should not allow our patients to know the name of the drug to be injected, lest thus we become responsible at a later period for his administering it to himself. Call it, if a name for cocaine be demanded, "the erythroxyton alkaloid." That is both true and highly elucidating to the patient.

About Dr. Kirk's criticism against our "pandering to the weakness of our patients," in employing whatever means will best help us to make our work devoid of suffering, it is simply a repetition, in principal, of the unjust attack levelled against Mr. (afterwards Sir) J. Y. Simpson, the man who first relieved the agony of child-birth by using chloroform. His answer is historic, and went to the root of the matter. He said, in effect, that his critics were far more cruel than the Lord. "He it was who performed the first operation, when he removed 'from Adam's side a rib from which to make Eve; and before doing so threw him into a deep sleep, that he might not suffer.'"

Following this example, we very properly throw the rib into a deep sleep while she is producing each fresh Adam; and this, although obviously we are pandering to her weakness!

A STUDY IN THE PATHOLOGY OF THE THIRD MOLAR.*

BY L. ASHLEY FAUGHT, D.D. S.

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The average student, after a careful and critical review of the literature pertaining to the third molar, could arrive at but one conclusion, namely, that the pathology of the tooth begins and ends in the accidents of eruption; and that this important member of the dental family is almost solely of interest to the dental practitioner from what is practically its surgical aspect. It is also apparent that the majority of essayists accept this idea.

Freely admitting that this phase of the life history of the

(*Read before The New York Institute of Stomatology, February 5, 1907).

third molar may be the most alluring, if not the most prominent, and that it offers brilliant opportunity in the field of diagnostics, by radiography and other methods; and that when present admits of brilliant treatment and results at the hands of competent surgeons, there still remains much to be studied that is of practical interest to the dentist,—conditions which will confront him, and which he will be called upon to treat in the course of daily practice. For these reasons it has seemed expedient to me to correlate some thoughts concerning the third molar, and to call your attention to a few points which offer opportunity for the closest study and are worthy of your careful consideration. I refer particularly to those conditions resulting from hereditary, developmental and anatomic variations and degenerations, together with their reflex phenomena.

To properly commence the study of the pathology of this tooth, we are carried primarily back to the days of primitive man. At this time the third molar was a constant quantity, practically always present and equal in size and strength to its fellows. Skulls from this period show decay to be a condition almost unknown, while irregularities and malpositions were among the rarities. Apropos of this, Talbot makes the following statement (E. S. Talbot, Illinois Medical Bulletin, Vol. 5, No. 8): "Man reached his highest physical development when he had thirty-two well formed teeth. Tooth decay naturally goes hand in hand with rise in evolution. This evolution is a race for supremacy between the men of brawn and the men of brain. * * * The continued recession of the jaws no longer permitted thirty-two teeth, and they are now being dropped commencing at either end of the jaw. The third molar and the lateral incisor are growing smaller. While these changes are progressing, tooth structure is degenerating in thickness, density and quality."

Right here it seems advisable to call attention to the fact that in considering the various pathologic conditions of this tooth, it must be borne in mind that the third molar in the mandible presents distinctly different features from the same tooth in the maxilla. The upper tooth suffering far less from the disturbances dependent in part from degenerative and hereditary tendencies than its antagonist.

To note that the time of the eruption in the upper jaw precedes that of the corresponding lower tooth, often by a consider-

able lapse of time, is to possess an insight into the etiology of some of the pathologic states of this tooth. Further, the upper third molar is the smaller tooth, as a result of the same degenerate tendencies accompanying high mental development. This is probably the result of a gradual diminution in size. The cause of these anatomic variations have in part been alluded to in the above quotations.

The continued recession of the jaws already pointed out has resulted in contraction in one part of the mandible chiefly. In the process of contraction of the mandible, the total length of the jaw from mental point to gonion, has decreased without proportionate reduction in size of the individual teeth, and also without commensurate decrease in the size of the ramus. This leaves the space between the second molar tooth and the ramus as the only place for reduction in length to occur. This is precisely where it does occur.

In this process of shortening, the internal and external oblique ridges of the mandible have been carried forward, and are, therefore, on a higher plane in the region of the wisdom tooth than formerly. This results in a more or less complete suppression of the alveolar ridge of this tooth. Thus we see that the bony environment of the third molar, and to some extent of the second molar, is distinctly different from that of the other teeth. The third molar is thus completely surrounded by firm bony tissue. This extreme density of this bony surrounding is well recognized by extractionists.

We have here a rational explanation for some of the pathologic states of the inferior third molar.

It is easy to recognize that a tooth which is forced to develop within firm bony walls, instead of within the relatively soft cancellous alveolar process, will be far more exposed to the unequal pressure and distorting influences of its environment. This same pathologic state of bony surroundings has an important bearing upon the production of incomplete and unerupted teeth.

The normal bony surrounding of the teeth is the alveolar process,—tissue, essentially cancellous in structure, the teeth and alveolar process being interdependent, coming and going together. The occurrence of a tooth germ within the body of the maxilla or mandible, is pathologic. The tooth and tooth germ here developing in a tissue which takes less kindly to them

than does the alveolar process. The tooth germs and teeth then are of the nature of foreign bodies, and as such produce more or less of the pathologic disturbances in the tissues, common to the presence of foreign bodies.

We have seen that from an anatomic standpoint, the lower third molar does not possess any alveolar process. This tooth is, therefore, under abnormal surroundings, and thus is an irritation to the bone.

Pathologically, when a tooth or tooth germ become encapsulated in the bone, with or without fluid, it constitutes a *dental cyst* or *odontome*.

Continuing further this line of thought, the third molar at the present time, in its present state of degeneration, accompanied by its partial or complete capsule within the body of the mandible, is a foreign body, in no way differing from the classic dental cyst, and as such demands removal.

Thus we trace the third molar in its degenerative decline.

Primarily it was a normal and useful organ, of definite service to its owner. Through the processes of evolution it is gradually becoming useless, and has, therefore, begun to undergo retrograde metamorphosis, and so through the processes of evolution its environment has become altered, and it is now found in tissues hostile to it and where it is practically a foreign body, and as such demands removal in every instance where it shows the slightest tendency to produce disturbance, or degenerative change.

A farther point, bearing on the inter-relation of evolution and degeneration of the third molar, is found in the fact that the third molar in man along with the other molars in a less degree, is becoming a useless organ. This is a result of a modification depending upon civilization and our methods of preparing food, by cooking, cutting, etc. (See Juan Falero, *Dental Cosmos*, 1905, page 564.) For this reason, nature, in her wonderful conservatism, is gradually eliminating this organ from the human economy. The third molar is thus becoming smaller and weaker, a vestigial structure, similar to the Pineal Gland and the Vermiform Appendix, and like them is gradually undergoing degeneration, which will eventually end in its extinction.

It is further a recognized physiologic fact that all tissues which are the seat of a retrograde metamorphosis are points of

lowered vital resistance, and are, therefore, particularly susceptible to the influence of disease. The third molar belongs to this class.

The relation of acute infectious processes and periods of impaired vitality, such as occur in childhood and in chlorosis, may become a factor in the production of defective and deformed teeth. At this point the very able article which was read by our fellow member, Dr. R. R. Andrews, last year (*The Journal of The New York Institute of Stomatology, etc.*, Vol. 1, No. 3), "Upon the Formation of the Enamel, Normal and Pathological," becomes evident. These changes Dr. Andrews has shown to be dependent in the main upon changes in the capillary and blood supply of the developing teeth, which retards, alters or inhibits the enamel formation. This results in the production of an enamel covering, which may be granular, deficient in thickness or density, or showing imperfect fusion at the fissures. Thus, in the event of serious systematic disturbances during the period of growth of the child, we may expect to find defective teeth, when they finally erupt. This offers a satisfactory explanation for many cases of early decay in the third molar and which is a factor favoring the early loss of this tooth.

The effect upon the development of the teeth, of a high-strung and unstable nervous system, is familiar to all. Another factor of all ill-shaped and degenerate formation of teeth. This same factor is also operating to produce inequality of the teeth and the size of the containing jaw. Talbot states that (*E. S. Talbot Developmental Pathology*), "Arrests of jaw may occur * * * though the teeth do not become arrested in proportion. * * * these conditions result in irregularity of the teeth, particularly the second and third molars." Here we have another causative factor in the early loss of these teeth.

An artificially produced irregular state has recently become prominent since the application of the intermaxillary elastic in the correction of deformities of occlusion. The change in position of all of the teeth during these manipulations is greater than is usually recognized.

Since these manipulations are usually brought to a conclusion before the eruption of the third, and often before the second molar, it not infrequently occurs that the space which nature has allotted to these teeth, already contracted through the changes of

evolution, has been further encroached upon by the backward movement of the first molar so that when these teeth erupt they appear in a position partially or wholly without the normal line of the arch.

In the event of this complication, where replacement is impossible from lack of space, the rational treatment would seem to consist in the extraction of the third molar, thus allowing the second molar a fair opportunity to become a useful member.

Passing now to the pathologic states of the third molar, which result from general impairment of nutrition, and which show their effect in disturbances of the eruptive process, we note that these delays in eruption may be of varying length, from those appearing but a few years behind time, to those cases where eruption is inordinately delayed, taking place quite late in life or not at all. Instances of the latter condition are cited as follows:

Case 1: A woman of forty years erupted a third molar in the horizontal position (L. Guillimin, *New York Medical Journal*, February 21st, 1903).

Case 2: A man aged fifty-seven, a victim of pyorrhea, erupted an upper third molar after passing through an attack of cellulitis, involving the jaws and the muscles of mastication. Five years later, while suffering from the same disturbance, the third molar of the opposite side was erupted. (A. E. Preston, *Dental Cosmos*, 1901, page 115.) These cases are particularly instructive for they show the possibility for third molars to remain encysted for what is practically a lifetime, only in the end to produce pathologic disturbance and possibly jeopardize the life of the individual.

The eruptive force is the result of the process of growth in the root portion of the tooth. If this power is lacking in vigor so that it is unable to overcome the resistance offered by its bony surroundings, or is so weak that it ceases before the formation and consequent eruption of the tooth is complete, the tooth will then remain within the jaw as an encysted mass.

The probable anatomic factor entering into the production of this condition exists indirectly in the origin of the formative germs of the molar teeth. These teeth for obvious reasons do not derive their origin directly from the germs of the corresponding deciduous teeth. The formation of the germs of the permanent molars, is by a budding process from the germ of the immediately

preceding tooth, during the early part of its development. This division process occurs twice, some say thrice, before the germ of the third molar is produced. Under these circumstances it seems reasonable to suppose that any period of illness or impaired on the part of the growing child during this activity could easily affect the normal progress of this process, with the result that when the germ of the third molar is finally formed, it is in an abnormal condition, being attenuated and possessing insufficient strength and power to accomplish fully and perfectly its function.

On the other hand, temporarily delayed eruption may be the result of a variety of causes. Transient systemic depression during the period of development of this tooth, may delay the time of appearance, or may for a time arrest the tooth in a partially erupted state. Again the presence of a very tough and fibrous muco-periosteum, may for a time arrest the eruption process until the fissures are slowly absorbed or removed by operative interference. A third cause is the early eruption of the upper third molar, which, coming well into position before the eruption of the lower tooth, more or less permanently blocks the complete eruption of its antagonist.

These conditions are all important factors in the early loss of this tooth, because such a state is particularly favorable to the retention of food, decomposition products and bacteria in direct contact with the tooth, so that even before complete eruption, decay will in many cases have reached serious proportion.

A further factor in the production of early decay of the third molar is found in a hypersensitivity on the base of the tongue, and of the pillars of the pharynx; here proper attention in cleansing is practically out of the question, in spite of all efforts on the patient's part to control the reflex. Many such cases, after repeated filling, will require extraction in the end, which might better have been performed earlier as soon as the condition was diagnosed.

Finally, a word concerning the reflex manifestations of this tooth and their relation to the early loss of the third molar tooth. These reflex disturbances are legion, being both local and general. The fifth or triangular pair of cranial nerves is pre-eminently the most important from the reflex standpoint, and the third molar seems particularly active in provoking such disturbances. These disturbances may be looked for at any time after

the tenth year, at which time the crown of the third molar is thoroughly calcified, and when the process which eventually terminates in the eruption of the tooth is instituted. They may continue until the tooth is finally lost or is removed for relief from the disturbances. They may involve any or all branches of the fifth nerve, and extend not only to all other nerves having anatomic connection therewith, but also to any part of the central or sympathetic nervous system. These manifestations may occur as referred or transferred pain, as motor spasms, and as the various "tics"; and finally in all of the well-recognized but ill-defined disturbances of the economy which we believe result from reflex irritation in any part of the body.

The reflex disturbances involving the organ of hearing merits particular attention, because of the very intimate connection existing between the trifacial and the nerves in relation with the ear, and because of the obscurity of many of these conditions, which, baffling the physician, are finally diagnosed and successfully treated by the dental practitioner.

Finally, I wish to discuss that very trying condition which occurs in connection with these teeth where, through faulty occlusion primarily, fibres of celery or meat, and secondarily, other food materials, in mastication, slip in between the second and third molar and impinge and pack upon the gum tissue of the interspace, destroying this tissue and setting up irritation in the periosteum of the bone, resulting in troublesome inflammation and necrotic conditions. In normal occlusion the lower second molar does not occlude at all with the upper third molar, and the upper third molar should so occlude with the lower third molar, as with every closure of the jaws to impel the mesial surface of the lower third molar hard against the distal surface of the lower second molar, thus preventing any springing backward of the lower third molar and consequent opening of the interspace, this force being felt all along the line, keeping the interspaces in the lower jaw all closed against the invasion of any foreign matter in the process of mastication. There being no normal occlusion between the upper third molar and the lower second molar at all, the upper interspace between the upper third molar and the upper second molar is relieved from food being driven into this interspace by the distal cusp of the lower second molar, which really clinically so frequently occurs. The intention of nature

being that the upper third molar should stand as a bulwark in direct occlusion with its opposing third molar held by the cusping of the lower third molar from springing open, and thus retaining closed the interspaces between all anterior upper molars. This is what I comprehend as Nature's original plan, but changes in the occlusion of all the molar teeth from loss of single teeth and from various other causes, present to us clinically constantly a quite different condition and a pathologic condition exceedingly annoying at all times to treat and almost impossible to overcome, as shown in two models which I pass around. Extraction of the useless third molar seems to be the only relief, and thus we lend ourselves to Nature's proposition to suppress these teeth. The object of this paper is to suggest that in dealing with this third molar, the best practice is to fully recognize this intention of nature, and accept her dictum rather than to try by expert skill, and it can only be done by operation involving expert skill, to prolong the existence of a tooth in the economy for which, like the appendix, Nature has no further use.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A regular meeting of the Institute was held Tuesday evening, February 5th, 1907, at the St. Margaret Hotel, 129 West Forty-seventh street.

The President, Dr. S. E. Davenport, in the chair.

The minutes of the last meeting were read and approved.

Communications on Theory and Practice.

Dr. S. H. McNaughton. With the intention of making more interesting and profitable the time devoted to "Theory and Practice," the Executive Committee proposes the following plan: With the aid of the other members of the Institute, to make out a list of questions concerning such branches as are ordinarily of interest to dentists and upon which information is always welcome. These questions will be sent to all members with the request that short answers be made to one or more of them, and the answers sent to the Executive Committee. It is hoped that all members may be interested in this and send to the Executive Committee such questions as they would like to have discussed. The following may serve as illustrations of the character and scope of the questions:

Have you any new method for taking impressions of difficult cases?

Have you any new forms of matrices or unusual uses for them?

How best treat and possibly abort cases of acute alveolar abscess?

What are the manifestations in the mouth of different diseases, such as Anaemia, Nervous Prostration, Arterial Sclerosis, etc.?

The President. The suggestion certainly seems a very good one. Please bear it in mind and help the Committee by sending questions to Dr. Bogue, its chairman.

At the Union meeting in Boston Friday, January 25th, the Institute was represented by a delegation of sixteen members.

We were royally received by the four Boston societies, and not only entertained at dinner Friday evening, but an opportunity was given us Saturday morning to attend, under the personal supervision of Prof. Eugene H. Smith, his orthodontia clinic at the Dental Department of Harvard, which was very interesting. We were also shown through the beautiful new Medical Buildings.

We have heard the report of the Executive Committee, and would like to hear from Dr. Kimball.

Dr. C. O. Kimball. At the Union meeting in Boston I was asked to read a short paper on the subject of the relation of the secondary schools of New England to the teeth of their pupils. I shall not read the paper now, but will give a brief summary of its contents. After outlining the need for proper care of the mouth, I referred to the duty and the means of preserving the teeth; that is, by personal care supplemented by professional cleansing. I had circulars sent to all the secondary schools on the census list in Massachusetts and Connecticut, asking them certain questions, and received replies showing that in one-third of the schools there was not even an attempt made at training or teaching scholars in the care of the teeth, while in at least one-third of the schools there was no opportunity given for scholars to regularly cleanse their teeth after meals. At some schools there was an evident attempt to rise to the occasion, realizing their duty, acting in the place of parents, and the needs

of their scholars; yet, as a whole, the care of the teeth in these schools seemed to us lamentably weak. Of course, it carries out what we have all observed in our private practice. It was from this basis I started, and as a result of the paper, I have prepared the little catechism, which I have passed around this evening.

Now, I suggest that we as a society this evening shall authorize this paper, or a similar one, or place this one in the hands of a committee to rewrite, if not entirely satisfactory, and also this catechism, so that they may be published in the name of the Institute. Arrangements have been made to have the catechism presented to the four societies for their approval. If approved, we will have some copies printed, sufficient to send to all these schools in the name of the various societies. The object, as you will see, is to make an appeal to teachers and principals of boarding schools, and with the united force and impetus of all the dental societies, get their co-operation in the care of their scholars' teeth.

I will therefore move that the Institute authorizes its name placed on this circular, and this dental catechism, and that they be placed in the hands of a committee of three to be appointed by the chair, to make any favorable corrections.

Motion seconded and passed.

Dr. E. A. Bogue. I am heartily in favor of this resolution of Dr. Kimball's and I think when the matter is placed in the hands of a committee that it will see fit to suggest an enlargement of the scope of its circulation. The subject of the prevention of disease of the teeth by such care as the individuals themselves may be able to exercise, is one that comes within our duty to the public; and there is great need of our entering upon it and enlisting the interest of as many societies as possible, in order to arouse public interest in the subject. The care of the teeth among the poor is enlisting a great deal of interest, and various charitable and benevolent organizations are taking interest in the subject, and inducing dentists to give their services for the prevention and alleviation of suffering and the prevention of pain and loss. The object of the dentist's efforts in this direction will be to try and teach the poor to take better care of their teeth. But, in my observation, those who are cultured and well-to-do need to have their interest stimulated in this direction, and I

think it very desirable to take an interest in this matter which Dr. Kimball has started, and push it as far as we can.

Dr. H. L. Wheeler. May I ask Dr. Kimball if he would be willing to have the catechism so worded that it could be sent to other schools besides the private ones. I am interested in work among poor children, and it appeals to me that it would be just as valuable to them as to the others.

Dr. Kimball. My idea was to have this authorization made, and then anyone can use it as freely as he likes. I would state that I received in my mail to-day a letter asking for three thousand copies struck off at once, if the matter was in type.

The President. The chair appoints Drs. Kimball, Wheeler and Whitlock as the committee to take charge of the matter

We will now take up the subject of the evening,, LOCAL ANASTHESIA, and will hear first from Dr. R. H. M. Dawbarn.

For Dr. Dawbarn's paper see page 107.

Dr. H. W. Gillett. I regret that it has been impossible for me to reduce my remarks to writing. This subject is very attractive and many-sided. Dr. Kirk's editorial in the December number of the Cosmos on this subject, apropos of a paper by Prof. Touchard of Paris, reviewed in that same number, is most interesting. The general line of argument in that editorial seems to me to be very apropos. When I first read it I was impressed with the thought that if Dr. Kirk were still in active practice he would take a different view. Yet, when I read the article again I found very little in which I failed to agree. In general terms he pleads for the use of local anesthesia in appropriate places, and argues against its abuse.

It seems to me that many of our profession are failing to use local anesthesia in many of the proper places and others are abusing its use. If I were to use local anesthesia as I infer they are being used from the number of advertisements (of proprietary preparations) in the journals, I should feel every time I did so that I was committing a criminal act. It is only necessary to compare the things that we know are done every day in the handling of these proprietary solutions with the description which Dr. Dawbarn has given us of the proper way of preparing anesthetics for hypodermic use, to realize the enormity of the offense as constantly perpetrated. It is easy at the present

time for every practitioner who has anything like the proper equipment for the practice of his profession to prepare at the moment of using a solution that is reasonably safe, certainly safe for any work that we have to do, that we have no excuse for not doing so. It is so easy to make at the moment a solution of cocaine or any of our ordinary anesthetics, that I cannot conceive why we see these advertisements in our dental journals of ready-made solutions. Ordinary examination of any of them seldom fails to show sediment and dirt, and it is a mystery to me how any professional man can take the risk of injecting hypodermically such solutions. I do feel that there are many places where we ought to use local anesthesia more than we do.

There is so much that is good in this editorial of Dr. Kirk's it may be worth while to read some extracts from it.

Dr. Kirk has evidently in mind the general indiscriminate use of local anesthesia. I do not know whether we are the guardians of our patients' moral interests to the extent he suggests, but I do know that all of us who are in active practice have most urgent demands made upon us for something that shall ease pain, that shall prevent pain, and that shall prevent and ease the apprehension with which our patients come to us. That demand is constant and insistent, and I feel that it is more than warranted, that it is a duty for us to do what we may with reasonable caution to answer that demand. I do not feel, for instance, about this matter of local anesthesia as one man did when he said to me, apropos of cataphoresis, that he did not want the dentin anesthized, because he wanted that sensitiveness for a guide as to how to fill the teeth. That may be to some men an attractive statement. It does not carry much weight with me. It seems to me there are other ways by which we may know how to select and place our fillings. The process which Dr. Kirk had in mind when he wrote, is one which had been previously called to his attention by Prof. Sandblom, similar to that which many of you remember seeing demonstrated in a clinic of the First District Society a couple of months ago by Dr. H. S. Vaughan; namely, the injection of cocaine first into the gum, following that with a special needle forced against the pericementum, and so reaching the nerves where they enter the tip of the root. He seemed to be successful in gaining results, and I have been waiting with interest to hear what he and others had to say further

about this process. It seems to have some attractive features. I have used high-pressure anesthesia syringes with caution, and my feeling that there is need for caution is increasing. It seems to me that the high-pressure syringe has a limited value for us, and I doubt if we are going to continue to use them any longer than we are obliged to. I fear ill effects from the application of so much force to teeth in which the pulp is to be kept alive. The simpler form of pressure anesthesia, the use of cocain in a cavity with rubber over it, and pressure with a blunt instrument is frequently effective in cervical cavities and young teeth. The first I knew of pressure anesthesia was about 1890, when Dr. E. C. Briggs of Boston proposed to use cocain with a blunt pointed syringe for the removal of dental pulps. Some eight or ten years later we had the term pressure anesthesia given us in connection with the use of etherial solutions of cocain intended to be placed in the cavities, and partially or completely sealed there, the pressure being induced by the vaporizing of the solvent. I am told by the editor of one of our journals that he had heard of pressure anesthesia before Dr. Briggs' announcement, but he credits Professor Morton with the discovery nearly ten years after we were using the principle.

Pressure anesthesia as we know it for the removal of pulps is a very great help to me in my practice. I find it difficult to understand those who do not get results. I cannot see how it can be otherwise than desirable when a pulp is to be removed to use a clean surgical operation, rather than the sloughing following the use of poisons.

In closing, I want to get down to one of the practical every day details of our work. I think one reason why many men are not using local anesthesia as much as they might in connection with their work where it entails cutting and pressing of the gum tissue, is that they have failed to equip themselves with suitable apparatus. The syringe points that are provided by our supply houses are unsuited to our use. They are about twice the size they ought to be. Some of the dealers in the secret preparations seem to have appreciated that fact, and have provided a powerful and satisfactory syringe and fine needles, that are much better than those that are obtainable from our regular supply houses. I was shown one the other day by a friend of mine, and it was not only very fine, but it was also flexible,

which seems to me a very desirable thing to have. I have succeeded in having made by a concern in Boston a needle that is not more than half the size of those generally offered to us by our supply houses. It has, in addition, a very short bevelled but a very keen edge. My instructions were for just as fine a needle as they can get a hole in. By touching the gum with a drop of ninety-five per cent. solution of carbolic acid, it is possible to coax it in the gum of the most apprehensive patient with but little trouble, and I find it a very great help to have an appliance of that sort. It seems to me that there are a great many places where we might use local anesthesia if we would provide ourselves with the proper equipment.

I should be very much pleased if any gentleman would give me any practical knowledge of the process for injecting cocaine into the gum so as to anesthetize the pulp and dentin.

Dr. J. B. Locherty. The advantage of "local anesthesia" as the phrase is understood by dentists, are many, and I firmly believe that the day is not far distant when it will be used by all operators. Even now those who do not use it are the exception, and most of us invoke its aid more and more just as we naturally use porcelain and gold inlays in place of the huge gold and amalgam fillings we formerly made in restoring lost tooth substances. In both instances the object is the same—to save both patient and operator time, pain and unnecessary work. Of the various methods for producing local anesthesia the so-called "pressure" method is best known, it having been employed by many of us for several years with a high degree of satisfaction and success. By its use cocaine can be gradually pressed into the substance of the dentine, the pulp anesthetized and removed, bloodlessly if necessary. I have not formed an opinion of the value of the method in which a hypodermic syringe is used to inject cocaine through the gum tissue, as I have not used it, nor have I used any of the so-called "high pressure" syringes, which have rather recently been introduced for forcing the drug into the dentinal tubules.

The ordinary syringe, with an all-metal piston, I find to answer the purpose perfectly. Whatever method we use, we are all working toward the same end, and each should use the method he feels is best for him. I wish to emphasize what Dr. Gillett so ably called attention to—the danger of using the many

ready-to-use nostrums called local anesthetics which are advertised in many of the journals. We shall all remember that our duty to our patients requires us to perform our work as painlessly and as expeditiously as possible, and to that end local anesthesia is a very great help.

Dr. Kimball. There is so much to say on this subject, and there is so much that has been well said that I hardly know where to commence. I do not think I shall go further into the discussion of this subject, and will refer to but one or two things, as I am here to-night to learn, not to teach. I have for years used cocaine in my practice when there has been any small operation needed. For cavities I have been using eucain, but I find with eucain one result not with cocaine, and that is it is an irritant. I have again and again found small abscesses which would seem almost as if they were a likely result following the use of the eucain, so that I have disliked to use it. As for anesthetizing the tooth, I have tried the high-pressure syringe with unsatisfactory results; I was hoping some one would tell me how to use it. For the removal of pulps my experience has been quite varied but usually successful. I began using it with a very fine needle in a broken-off incisor. I found I could get the needle against that pulp without much pain; very slowly and gently I managed to get it a little further in, and then with a slight pressure there was a little sensation, and the pulp was then removed without any pain whatever. In a tooth where the cavity was so placed that I could not easily reach it, I have used the indirect pressure with success. As for the method of reaching the nerves by deep injection, I would like to have some instruction on that point. Where the dentin is hypersensitive my chief resource has been through dessication, for instance, I had occasion to treat a canine tooth the other day. I put on a rubber dam and treated the cavity with 40 per cent. formalin, after Dr. Fossum's plan. This took away some of the sensitiveness, then I treated it with hot alcohol, and dried slowly with compressed air, until the tooth was thoroughly dry and I could proceed with comparatively little pain, and that has been to me the most satisfactory way of reaching such cases. With careful and protracted dessication by means of a stream of air I have had most satisfactory results. I wish Dr. Bogue would give us his experience in using chlorid. I have used it, but I have

never felt satisfied with the results, and where I failed, perhaps others could tell me how they succeeded.

Dr. H. S. Vaughan. Last Spring I had the opportunity of seeing a Norwegian dentist who came to this country in the interest of a local anesthetic he had discovered. I saw him give two demonstrations of pulp anesthesia with his remedy. His method was to inject the solution into the gum and pericementum around the tooth, thus reaching the nerves it entered to supply the pulp.

He claimed that the solution was the chief factor, and it was his intention to make contracts for its exclusive use. It seemed to me that the technique was more important.

I then began experimenting with local anesthetics, first with the various synthetic remedies alone and in combination with cocaine. These were given up, as cocaine was found to possess greater anesthetic power and to be less irritating.

The solution that gives the best results is a 3 per cent. cocaine in normal saline, to which is added phenol in the proportion of 1 in 500, to prevent the growth of fungi, and adrenalin 1 in 35,000, to increase the duration of anesthesia.

To anesthetize a pulp by intra-alveolar and pericemental injection the needle should be inserted near the base of the festoon that dips into the interproximal space, pass it into the spongy alveolus between the teeth and direct it against the pericementum, then inject the solution towards the apex so that it will reach and anesthetize (block) the nerve as it enters to supply the pulp. This can be accomplished in nearly all cases, though in older patients where the pericementum is dense and thin it is more difficult to force the solution to the apex.

Dr. Dawbarn has suggested a method for blocking the inferior dental nerve as it enters the canal. I have several times anesthetized all the teeth anterior to the molars in the lower jaw by an injection at the mental foramen. In the upper jaw the posterior and middle dental nerves which supply the molars and bicuspidos pass down on the wall of the antrum and are therefore inaccessible though the anterior dental branch that supplies the incisors and the canines can be reached by injecting at the intra-orbital foramen. We also have anesthesia of that portion of the face that is supplied by the palpebral, labial and nasal branches.

Some one has spoken of anesthetizing the pulps of the anterior teeth by cocainizing the nose. I have not tried this method, though it does not seem to me that it would be successful, as the nerve reached is the naso-palatine which passes through Scarpa's foramen to supply the gums and periosteum around the anterior teeth, while the pulps of these teeth are supplied by the anterior dental nerve and would not be reached in this way.

Dr. M. I. Schamberg. It occurred to me while listening to this discussion that there is a marked contrast between the manner in which cocaine is taken up by the medical and dental profession.

In medicine many reputable men endorse cocaine, and many operations are performed under its local influence. In dentistry few practitioners employ it to any extent about the mouth, and its main advocates are the irregular practitioners who make free use of it for the extraction of teeth.

There are two reasons why cocaine does not meet with favor for operations within the mouth; the danger of injecting into infected areas, and the predisposition of the tissues of the mouth to sloughing and necrosis when the drug is used by submucous injection. Whether these results are due to the influence the drug has upon the tissues of the mouth, or whether the infection is brought about by unsterile needles, syringes and solution, I am not prepared to say, but, in my surgical practice many cases have been referred to me for the removal of necrotic bone following the use of cocaine injections. I fear that the indiscriminate use of cocaine and the failure to adopt aseptic surgical technique are mainly accountable for the untoward effects.

The method so ably described by Dr. Dawbarn for preparing sterile solutions of a definite strength, is an excellent one, and the adoption of such a routine practice would do much to guard against mishaps.

I am surprised that cocaine is not more frequently employed for benumbing the anterior superior teeth by application to the nasal floor.

During a recent operation of nasal puncture of my antrum, cocaine placed in the nose created for a period of half an hour a pronounced anesthesia in the region of my six anterior teeth,

the pulps of which I believe could have been removed without pain.

This method of applying cocaine is naturally freer from danger than when it is injected into the part, but, unfortunately, its topical application in the mouth is not accompanied by the same good results as when used in the nose; within the nose it is so readily absorbed that operations of considerable magnitude can be performed under its influence.

In the mouth we are working in a more difficult field, for an efficient anesthetic effect can only be produced by injection of the drug, the best results being noticed when blanching of the gum tissue is created by the production of a wheal. It should ever be kept in mind that infections spread rapidly in the mouth, and that the injection of cocaine is not devoid of danger. If, however, a sterile technique is employed and proprietary preparations are avoided, the elements of danger are largely overcome.

Dr. Gillett. I would like to say in reply to Dr. Kimball, it seems to me that attaining success in anesthetizing the dentin by the use of a high-pressure syringe is a comparatively simple matter. It requires only a suitable syringe and careful observance of the mechanical details. The pressure syringe must be held steady without undue pressure against the teeth. In one of the syringes which I have the pressure for driving in the solution is applied by turning a screw. I find that much more effective than the use of any syringe where it is necessary to hold the syringe very hard against the tooth in order to maintain a tight joint between syringe point and tooth. It seems to me that some of the syringes are very objectionable.

With reference to the use of cocaine in the nose, I want to emphasize the need of preparing the patient in that case. Some eight or ten years ago I had occasion to use it for a patient who was very susceptible to cocaine, and induced a very marked systemic effect. I mention this merely to emphasize the suggestion that when we attempt to use cocaine in that way we need to use the same precautions as when using it hypodermically.

I wanted to ask Dr. Vaughan whether he has noted any undesirable after-effects upon the teeth in desensitizing cavities where the pulps were not to be removed.

Dr. Vaughan. None whatever.

Adjourned.

AMERICAN ACADEMY OF DENTAL SCIENCE,

Wednesday Evening, March 6, 1907.

This society was addressed by Alfred P. Rogers, D. D. S., of Boston, Mass. Subject:

"A Critical Comparison of Methods in Orthodontia."

Discussion:

Dr. Smith, Harvard College:—I am pleased with the broad view the essayist takes of these different appliances. You cannot get up much of a discussion when there is nothing upon which to disagree.

Dr. George Baker:—I am very much pleased with this paper. I was in hopes that the essayist would go into the pros and cons of the different appliances. There are three things to be taken into consideration. We want to restore ideal occlusion. That has been brought out most clearly by Dr. Angle. This, while not new, has been brought to the fore more clearly by Dr. Angle than by anyone else.

1. The appliance must be efficacious.
2. It must be stable.
3. It must be simple.

We have got many methods, but practically two systems. Dr. Farrar obtained all the movements with the screw. To-day that system is not much in vogue because it is difficult to construct the appliances. Now the expansion arch is another system. It is not new. Fanchard nearly 200 years ago showed the expansion system with ligatures. The system, in my mind, which answers the three particular needs is the Jackson system. The spring clasp can be applied in orthodontia, also in the attachment in partial plates. It is applicable in the use of the intermaxillary force. Those spring clasps can be made very firm, and are not always removable by the patient.

(Dr. Baker here showed models with the appliances in position.)

It eliminates the ligature and putting a band around the tooth. We can force a tooth in any of the seven directions. The minute these appliances have done their work they stop and become retainers. This is an advantage in case of sickness. The appliance is most hygienic because it can be taken out and cleansed, and the teeth thoroughly scrubbed. The essayist said

that the rotation of bicuspid and molars could not be done, but I find this rotation can be done. The open bite is a hard thing to correct.

We are greatly indebted to Dr. Angle for the classification. It should be thoroughly studied and mastered by each student. I want to make a prophecy. I believe that in ten years that the Jackson spring clasp system will be taught in every dental college.

Dr. Reoch:—I want to speak a word on the other side. Dr. Jackson's springs have points soldered to them, and there is a constant difficulty in keeping these clean. The bands around the teeth, it seems to me, are not likely to cause decay. In the expansion method I think there is less liability of decay. Soreness is due to the improper adjustment of appliances when they are put in. I wish to compliment Dr. Rogers on his paper.

Dr. Ainsworth:—I wish to thank Dr. Rogers for this interesting paper and since I father one of the appliances mentioned, I should have something to say on the subject: I wish also to express my appreciation of what Dr. Angle has done for orthodontia, for he has, it seems to me, brought some phases of the subject more effectually before the profession at large than any one else. He has emphasized the importance of the sixth year molars, and correct occlusion, as well as attempted the classification of cases.

It is hardly to be expected that all will be equally familiar with all the different appliances, and a great deal depends upon the man behind the gums. It is easier for a novice to abuse rather than intelligently use appliances. The matter of cleanliness is of prime importance and this advantage, it seems to me, lies with the simple appliance which is firmly cemented to place. Perhaps 90 per cent. of orthodontia cases require spreading of the arch as a preliminary to the alignment of the teeth, and for this part of the work I claim a great advantage in the use of the automatic spreading appliance, in the development and introduction of which I feel much pride. It is simple, effectual, and cleanly. It is worn with more comfort and less care from either patient or operator than any other with which I have had experience. It may, in some cases, be worn during an absence of from eight to twelve weeks, while it expands or spreads the arch a fourth of an inch or more, without discomfort and without atten-

tion other than ordinary cleanliness. It also lends itself to the accomplishment of other phases of the work, which the orthodontist of immature genius will readily see and appreciate, and none other should expect to make much of a success of this work.

While I am not ready to admit superiority of the man who practices orthodontia exclusively, I do believe many dentists would do better for themselves and their patients if they referred their cases to one who has special ability in that line.

Dr. Moffett:—In the last eight years I have used the Angle system practically exclusively. I make my own appliances, because I believe that the pure gold or platinized gold appliances are cleaner and better looking. Dr. Angle's method utilizes the screw method of Farrar by the use of nuts behind the clamp bands. Any appliance which is acting on the spring plan acts constantly. The valuable thing about the Angle system is that there are alternate periods of work and rest. It seems to me there would be less soreness in this way. A patient whom I have recently worked for said to me that her mates in her private boarding school complained of constant soreness. I find 18K 36 gauge plate best for bands.

Dr. Rogers, closing the discussion:—I did not assert that the bicuspid could not be rotated by the Jackson system, but that it could be easier done by the Angle system. I think with Dr. Moffett that gold appliances are the best. We should give our patients the very best service and materials within our power. I thank you for your kind attention.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A regular meeting of the Institute was held Tuesday evening, March 5th, 1907, at St. Margaret's Hotel, 129 West Forty-seventh street, Dr. E. A. Bogue, Chairman of the Executive Committee, in the chair.

The minutes of the last meeting were read and approved.

Chairman. I will call upon Dr. McNaughton concerning the list of questions that he is preparing, with the help of all our members, for presentation.

Dr. McNaughton. The idea was to send out a list of questions to all members, hoping that they would answer them, so

that the time devoted to theory and practice would be filled to better advantage.

Chairman. Members will kindly bear this suggestion in mind, and add to the list of questions before the next meeting of the Institute. Because of the lateness of the hour, we will pass the order, "Communications on theory and practice," and ask the essayist of the evening to favor us now.

I take pleasure in introducing to you Dr. L. Ashley Faught, of Philadelphia, who will address us upon the subject, "Study of the Pathology of the Third Molar."

For Dr. Faught's paper see page 115.

Chairman. Gentlemen, the communication from Dr. Faught is before you for discussion, and as we have some gentlemen from a distance with us this evening, it is to be hoped that we shall hear from them. Might I ask Dr. Brown, of Milwaukee, to give us his views on this subject in opening the discussion?

Dr. G. V. I. Brown. I am very much honored. It seems to me that there is need of a paper of this kind at this particular time. The knowledge so clearly set forth by the essayist dovetails in nicely with some other lines of investigation, and makes a very nice piece of cloth that is going to cover a good part of this subject before we finish with it. The question is, What can be done to correct these conditions? Dr. Talbot, who has been referred to, has spent a good many years of his life in the development of a better understanding of the stigmata of degeneracy. If there are expressions and forms of features which indicate a degeneracy due to unequal nerve cell development, and if we know any such people or the children in whom there will be that degeneracy of insufficient development of those third molars, what does that signify? Why, it seems to me very plainly to mean that instead of waiting until we have no alternative but extraction, it is a reasonable procedure to begin early to make room for that tooth; from a very early period until the sixteenth year or later. The pathology of the third molar means directly and indirectly nearly all we know of oral pathology; it takes us over the whole field, and I have in my own work so many grave illustrations of what this means that it is an exceedingly important matter. Dentists are very kind about sending to specialists that kind of work, and I have had many such cases. I look upon them as exceedingly difficult and dangerous because of the possibility of infection.

In one man I found, where the trouble began in that region, some want of proper care. Undoubtedly he waited a little too long and the tooth had to be extracted; it could have been saved with proper care. Another example was of an upper third molar that erupted between the roots of the second molar that patient had been diagnosed as having St. Vitus dance. Since the removal of that tooth she has been materially better, not altogether cured. I had another case where the uncleanness of the distal surface gave rise to inflammatory conditions and resulted in the death of the patient in spite of all that could be done. Now, those are the things that face us in the pathology of this question, and it is a very grave problem. Make room early for the wisdom tooth, otherwise the only course is the remedy as given by Dr. Faught, and it is undoubtedly correct.

Dr. J. F. Hasbrouck. Our essayist has covered the field thoroughly, as the previous speaker has clearly stated. The remedy is to make room if possible. If I understand Dr. Faught correctly, he advocates extraction of the third molar on general principles. I cannot quite agree with him, as I do not think we should meddle with the third molar any more than that our medical brethren should remove the vermiform appendix indiscriminately, because we admit that we are degenerating in that respect also. I have always believed that by proper manipulation of the mandible in children the circulation could be increased so that the lower jaw would develop as nature intended it should. There is no question but that our methods of living have a great deal to do with the underdevelopment of the third molar at the present time. There is no question whatever that if we chew harder food, giving the jaws more work, they would be better prepared for their work. That is perfectly logical.

Dr. M. I. Schamberg. This subject interests me much, owing to the fact that I have to cope with some of the more serious conditions resulting from the prolonged retention of third molars.

It is a mistaken idea that we are to expect serious consequences only from mal-posed third molars; those that are not in good occlusion with the upper teeth, or those that are not in proper relation with the teeth immediately preceding them. Inflammation about third molars from any cause may extend to the submaxillary and tonsillar regions. In several instances I have seen oedema of the glottis, threatening suffocation from infected

foci about third molars, due to pockets between the flap of gum tissue and the teeth, and in other instances due to incomplete canal work following the death of the pulp of the third molar.

At one of our previous meetings, in response to the principle conveyed by Dr. Joseph Head in his paper bearing upon prophylaxis as it applies to third molars, I stated that I thought the best way to keep the region of the third molar clean was to remove that tooth.

With Dr. Faught, I believe that a great many third molars are better out than in.

The claim that third molars tend to keep other teeth in proper alignment is well founded when a jaw is sufficiently large to comfortably accommodate these teeth; but when this not the case, the third molar comes in contact with the mucous membrane overlying the ramus, and a pocket is formed, which invites the lodgment of food and other oral debris.

Many of my radiographs show a definite area of infection immediately beneath the anterior portion of tilted third molars. Just as Dr. Brown has ably stated, and as the essayist has brought it out in his paper, the pathology of the third molar differs in no way from the pathology of the mouth generally; but the consequences are oftentimes more disastrous owing to the position of the tooth. There are many cases of facial neuralgia that can be traced to third molars; I believe the larger proportion of cases of tic douloureux are induced by tooth trouble; I believe the disease to be due to a progressive degeneration of the tri-facial nerve from prolonged irritation, such as is occasionally brought about by impacted third molars.

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I recently operated upon a woman nearly 70 years old for the removal of a lower third molar which had never erupted. The tooth was situated in the body of the jaw, the inferior dental canal being completely cut off by the tooth, which was standing erect, and occupying the entire space between the border of the jaw and the soft tissues above it; it was one of those cases where very careful bone cutting was necessary before the tooth could be removed, without fracturing the jaw at this weakened spot.

That brings us to the point in regard to the manner in which many of these difficult cases come to the specialist. They are too infrequently prepared for the fact that they have something to deal with more difficult than a simple extraction. There is no

surgical procedure about the mouth more difficult than the removal of some badly impacted third molars. Patients should therefore be appraised of the fact that it may be necessary for them to undergo other anesthesia at hospital or at home, so as to guard against the mishaps that take place when such operations are performed under less ideal conditions. Thorough surgical asepsis is most important in these cases in view of the great danger of the infections that spread from the third molar region.

When the case is already infected, the preparation of the part for one or two weeks prior to the operation is advisable, unless it be an emergency case.

I agree with the essayist in most everything that he has said, with the exception that I find the upper molar more frequently undersized and peg-shaped, showing evidence of retrograde change. The lower molar, however, is more likely to be a troublesome factor owing to its mal-position. Generally speaking, I believe we might liken the third molar problem (as to whether they ought to be sacrificed or saved) to the attitude of the government towards a criminal. Capital punishment occasionally works a terrible injustice, but it is practised for the best interests of the community. Just so with the third molar. It may be a great wrong to sacrifice an innocent tooth, but in the large run of cases it is far better for the patient and for the mouth environments to have the tooth removed.

Dr. H. C. Meriam. I came from home before the notice of this meeting reached me, and am, of course, unprepared to discuss the paper. But I wish to dissent as strongly as possible from the paper, and much of the discussion. The consequences following the extraction of the third molar seem to be overlooked.

The loss of it allows the working down of the second upper molar, forming a space that is hard to care for, and if we gave the same care to the third molar that we shall have to give to the other teeth after its extraction, the patient would be better off. We must, of course, separate in our minds patients who care for their teeth and come to us for care, from patients who neglect and have practically abandoned their teeth. Disease spreads rapidly in heat and moisture, and the third molar is in the midst of them all the time, but the gum about it may be kept healthy by cauterization of pockets, and a badly decayed tooth can be treated with

nitrate of silver before filling, and when so treated can be filled with almost anything.

I do not feel that helping Nature out by the removal of weaker portions of the body is right any more than I feel that the improvement of society comes by the removal of the weaker or criminal. England deported criminals without lessening the number of criminals that were produced, and the criminals deported did not breed criminals, but founded a commonwealth. Australia, one, I suppose, of Mr. Kipling's Five Nations, is a leader among the new people of the world.

Look at an extracted tooth and see what a small portion of it is diseased, compared with the portion that is sound, and realize what a revolution of order extracting is.

Dr. F. Milton Smith. I am much interested in the paper as well as in the discussion. I agree with the essayist in part, and with Dr. Schamberg and Dr. Meriam. I cannot believe that Dr. Faught has gone so far astray that he would take my good wisdom tooth out and say it was the right thing to do. I have had cases in my practice where I believe Dr. Meriam would think a wisdom tooth was better out of the mouth than in. I do not believe we can lay down any cast iron rule for the treatment of such a case. I sometimes take a wisdom tooth that is badly decayed, cut out the decay, cauterize it thoroughly with nitrate of silver, and then fill with good, substantial alloy. If we can have our patients come in occasionally and we can assist them in keeping the tooth clean, it seems to me that tooth is in better condition than in the ash barrel.

I am quite sure my mouth is in better condition to-day on the side where the wisdom tooth was permitted to remain than on the other side, where extraction was resorted to. So I cannot feel like taking a radical ground along this line, and if Dr. Faught means to take out all wisdom teeth, then I cannot agree with him. I do believe that these wisdom teeth are exceedingly useful.

Dr. J. Lowe Young. There was just one thing, gentlemen, that struck me, if I understood Dr. Faught correctly, and that was, that the loss of the third molar as well as the upper lateral is in the process of evolution.

Dr. Faught. I referred to it, but did not discuss it.

Dr. Young. The point I had in mind was this, that if this lateral is to go with the third molar, and the lower lateral remain,

what is to take its place with the occlusion? Now, Dr. Schamberg said the third molars are getting smaller. I do not think I have ever seen a very small lower third molar. I have seen small upper third molars and I have seen them in skulls in aborigines who had perfect occlusion and normal dental arches. I do not say they were absolutely perfect, but very nearly so. I think we want to look a little bit before we jump to a conclusion.

Dr. H. W. Gillett. I occupy so nearly the position of Dr. F. Milton Smith in his remarks that to express myself would be largely a repetition. I see occasionally third molars I think my patients would be a great deal better without, and I think there are others we ought to keep, in spite of malpositions. I do agree decidedly with Dr. Meriam that the third molar is a much more useful tooth than Dr. Faught's remarks would lead us to suppose he considers it to be. In addition to this question of making room early for developing teeth and so anticipating the possibilities and probabilities, I would suggest that it is a duty of our profession to begin early to teach our patients to use their jaws, to use their teeth so as to favor the normal development which will provide room. We often find children with teeth where decay begins early. A tearful mother wants to know what in the world is the matter with Johnny; he has always eaten oatmeal for breakfast, and if he is observed it will be found that Johnny puts the oatmeal in his mouth, wipes it once with his tongue and lets it go. How can we expect teeth or jaws to develop under these conditions, and who is to give Johnny and his mother the instruction they need? Possibly the specialist in children's diseases as a rule has to be awakened to the fact that he has a duty in that direction. Scarcely one in fifty of our own profession has realized that point. I believe strongly that it is as impossible to develop good teeth and good jaws without using them as it is to develop good muscles without exercise. As a profession we have so far failed to do our whole duty in this particular field.

Dr. F. L. Stanton. In regard to the third molar, we have many authorities who have gone over the subject very carefully. Among the Europeans it is estimated that ten per cent. do not erupt the wisdom teeth. The upper is erupted less than the lower; eighteen per cent. do not erupt the upper. Cases have been reported of the fourth molar in man, bringing the number of teeth up to thirty-six. The new world monkeys have normally thirty-

six, while the old world have thirty-two and in rare cases thirty-six. One authority who examined one hundred and ninety-six adult skulls of ourangs, found twenty per cent. had additional fourth molars, while in the chimpanzee the third molar is smaller in size and not infrequently missing. There is one point the essayist touched upon that has been heard of before in Philadelphia; that is, possible impaction of the third molar, due to the use of the intermaxillary elastics. I do not think this belief should gain ground until better proof has been brought forward by those who have advanced it. There is already one case on record of the treatment of a Class Three case (Angle classification) that has been treated by the distal movement of the inferior molars, radiographs being constantly taken during the course of treatment to show the action upon the inferior third molar, and the result is far different than the possibility that the essayist pictured.

Dr. G. S. Allan. When I first commenced practice there were a number of dentists who believed that by taking out the six-year molars they would bring about good results. A great many dentists to-day will sacrifice the six-year molars without hesitation, and so for many years past the six-year molars have been extracted, and in the following generation nature has reproduced that six-year molar, and in every succeeding generation it has appeared with its old-time regularity. Another set of dentists many years ago did not believe in the third molar. I fell a victim to one of them and lost a valuable tooth, the best I had. There were and are two classes of dentists—those who believe in taking out the six-year molar and those who believe in taking out the wisdom teeth.

In Prince Edward's Island it is the practice of all young and growing-up people to have the dentist visit them and take out all their teeth; store teeth are the fashion. But nature keeps on producing thirty-two teeth in those poor islanders just the same. In Arkansas and some other points of the West, the peripatetic dentist comes along once in six months and cleans out the mouths of all his victims in his broad path, and gets them ready for his visit six months hence, when he gives them store teeth; but in spite of this nature keeps right along manufacturing thirty-two teeth for all the children.

In the museum in Cambridge, Massachusetts, you see the skulls of many different races of early Indians, people from Yuca-

tan and Eskimos, all showing that thirty-two teeth are the normal number required for ordinary business purposes, and the third molars are proportionately smaller than the other molars—no difference from those we see at the present time. This rule applies to the upper molars and not to the lower wisdom teeth as far as we know. For a thousand years Dr. Faught and his school might keep up their practice of sacrificing wisdom teeth, the most useful teeth in the mouth for masticating purposes, and at the end of the thousand years twelve molars would be produced in the mouth of every human being. What we have to do, gentlemen, at the present day, is to take care of the mouths and teeth of those who present themselves for our service; do what is the best for each and every patient. Shall we sacrifice a tooth because it is a little imperfect, because the brush cannot reach it and keep it clean, or put a little more skill, a little more patience, a little more conscience into our work and let those teeth have a chance to do useful work for that patient? I deny that there is any law applied to wisdom teeth which does not apply to every other tooth in the mouth. Each tooth in the mouth, whether it is to be kept or not, is to be judged by its own conditions. Sacrifice a wisdom tooth? Yes, if it has ceased to be useful and cannot be preserved, but give it a chance.

Dr. H. S. Vaughan. Some of the speakers have been more radical than necessary in advising the removal of third molars that are the seat of suppuration. In nearly all cases the complete excision of the overlying gum will remove the infected pockets and prevent further pus formation. However, should this fail to prevent further infection, extraction of the tooth is necessary. I have had no experience with Dr. Bogue's method of erupting impacted third molars, though I have had the opportunity of seeing one of his cases where the result has been satisfactory.

Dr. L. C. Taylor. This paper presents a different condition of things from what my forty years of experience has taught me. The essayist says that it is the intention of nature that the third molar be omitted. I think if this is degeneracy, of which he speaks, I must take issue with him. I do not believe that it was the intention of nature to produce degenerates. I believe that God Almighty intended that every nationality should marry among its own, and it is the very bad combination of the large and small boned persons that has brought about this construc-

tion of the arches. In a large per cent of cases under observation our patients partake of the teeth of the father and the mouth of the mother. There are exceptions, but as near as I can calculate nine out of ten will follow this rule. For instance, a large-boned Scotchman married a small French woman. What can we expect? She with a V-shaped arch and small jaw reproduces a similar mouth to be stocked with large teeth, crowding backwards until there is no room for their development. For a number of years it is one of the proper exercises of the child to develop those tissues that the teeth may erupt in the normal position. We often see a little child biting a stick, which is nature's way, of massaging the gums, until there is easy eruption of the teeth. The mother jumps up and takes the stick away from that child; he may occasionally get a rubber nipple, that is all. If left alone he would have developed good, strong, healthy tissue, designed to bring the teeth forward in their natural way. Dr. Riggs found in Washington in 1876 one hundred and sixty-four skulls of prehistoric Indians, reared in nature's own cradle, rending their food from nature's stock. Dr. Riggs found there was a perfect development of every tooth in those skulls; there was no sign of gum irritation, with two exceptions, and only two decayed teeth in those one hundred and sixty-four skulls. Did nature ever drop any part of any human or animal anatomy? Never.

Have any present ever seen a flock of lambs after the farmer has been mutilating their appendages? Yet, did you ever see one miss and come up without a full grown appendage? However, those lambs never miss having a tail without the violation of natural laws.

Dr. Schamberg. There has been so much of the conservative side of this subject spoken about, that I want to explain not alone my position, but the attitude of the essayist in regard to this matter. There is nothing so much to be encouraged as conservatism, but it is ultra-conservatism that works harm. We do not advocate the removal of a tooth normally placed in the mouth and doing good service, nor would we condemn that tooth merely because it was a third molar. But with the other teeth in good position in my mouth I would seriously object to having pulp canal work done on the third molar. The operator's technique is not always at fault when dealing with the canals of these

teeth. The imperfect work is due to the difficult field in which he is operating and to the irregularity and tortuosity of the roots of these poorly formed teeth.

We encounter the same conservatism among some men of the medical profession who raise a hue and cry against the surgical treatment of appendicitis, for the simple reason that one occasionally sees a case cured without the removal of the appendix. There is no doubt in the mind of the modern and observing physician that it is far more safe to remove the appendix early than to wait until it has suppurated or become gangrenous. Now the longer the third molar remains in mal-position, the more difficult and dangerous the operation. The bone becomes more dense with time, owing to the irritation. I may appear to be taking a radical view of this subject, but I do it so as to direct your attention to the dangers that arise from ultra-conservatism.

I do not believe that the fact that third molars are growing smaller is any evidence of degeneracy; during the advance of civilization we find many changes taking place in the human economy in consequence of our changed methods of living. I do not wish to class these changes as degenerative, for our minds are developing to cope with the unusual conditions that present.

In closing, let me emphasize the fact that my discussion applies mainly to the abnormal rather than to the normal third molar.

Dr. Brown. I used the term "getting more room" in a broad way, but what I mean by getting room is wider jaws, wider face, wider nose, and with that the development mentioned. But more than that we can in our adult patients do a great deal with widening. It is surprising how much one can help the nose of a patient as old as thirty odd years. If space is made the increased room helps the third molar to do a great deal for itself.

Dr. E. A. Bogue. The pathology of the third molar involves the pathology of the mouth, and the hygiene of the third molar involves the hygiene of the mouth. Delinquent children seem to be below the average in point of physical development, and so, therefore are adult criminals. It has been found that 90 per cent. of delinquent children have 90 per cent. of delinquent molars.

Dr. Faught. I wish to present my thanks for the courtesy

shown me and for the kind discussion of the topic I had the temerity to present this evening. I have had one or two gentlemen do me the kindness to read between the lines. When I wrote this paper, gentlemen, I recognized that I was going into a new field, but I considered the representative men here and saw a grand and good opportunity of placing the subject before this body. When my mind selected the topic, I assigned one of my assistants to go into my library and look up the details and matter necessary to produce this paper. My library is fairly well provided with the literature on dentistry, but he came back aghast and reported that he could find nothing. I said, "Go back and get what little there is into shape." Then I did a little investigating of my own, and going through the library found that there was indeed very little on the pathology of the third molar, and that little was hardly worth mentioning. However, I have presented what could be found and put together as a paper upon the pathology of the third molar, and am delighted with the result. Dr. Smith did not believe I was quite as radical as the paper read. I must have succeeded very well. I tried to present the paper in such a way that the men would have to develop the discussion, and that has been the result. What I mean is that I set aside my views, and practice, and ideas, and simply allowed myself to follow the logical trend of thought to a logical end; and there it is, the conclusion I had to accept. Regarding the remarks made by Dr. Hasbrouck when he referred to the extraction of this tooth in a radical way without proper cause, and compared it to the removal of the appendix by our medical brethren without proper cause, I was very careful to say that it was a diseased tooth; in no instance would I remove a useful organ. Then a reference was made regarding the third molar; the gentleman said that there was no rule applied to this tooth that could not be applied to the other teeth. I tried clearly to show in this paper that we have to recognize that the environment of this third molar is distinctly different from the environment of the other teeth, and that the laws of other teeth could not be applied in this pathological study. This tooth is usually erupted in bone tissue.

Some reference was made to the lateral teeth; I would never under any conditions that I can possibly conceive, think of extracting a lateral tooth, and I hope no gentleman here would

accuse me of it. Then, as to the forcing backwards of that tooth into its proper occlusion; I have seen that done in Philadelphia; there are cases of that character. Perhaps some day I shall have something to say about it, and I shall be anxious to hear other opinions, but at the present time it looks very bad. As to the extraction of the first molar and the argument that in their removal, and in the extraction of the third molar we are advancing beyond the teaching of nature, I do not so understand it, nor so see it. I may be very wrong, but I quite agree with Dr. Brown when he said he did not believe in opposing the trend of fate and law in such things. These things are being experienced from one cause or another. It is a very grave question, and it is time to stop opposing the handwriting on the wall; this refers only to the third molar and not to the first molar.

One gentleman objected to the removal of the third molar because in the casts I submitted he said that the same condition would be produced in the second molar. I would a great deal rather treat it in the second molar, and I ask for a further looking at the casts.

The Chairman. We extend our hearty thanks to Dr. Faught for the paper he has read this evening.

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OF

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No. 3

THE RELATION OF COMMERCIAL EXHIBITS TO PROFESSIONAL WORK.

The importance of the relation between the manufacturing interests and the professional, has been very fully commented upon in this journal and in others, until it would seem that the subject had been practically exhausted. This consideration has been mainly confined to the relation of trade to the true professional spirit. The dental profession has been repeatedly warned, that the tendency to commercialism is rapidly destroying this spirit and leading dentistry into a partnership with the shop that must, ere long, work to the injury of it as a profession, and logically also to the detriment of the manufacturing interests. The true solution of this problem is to be found in a kindly consideration of the claims of trade and a positive separation of professional work from its methods.

There is one relation with commercial supply houses, that has assumed increasing importance in recent years, but has not claimed the attention, in our literature, that it seems to the

writer to deserve. Allusion is here made to the commercial exhibits that have become a prominent part of all conventions, both dental and medical.

In former years these exhibits were confined to a few of the prominent supply houses, and the stocks exhibited were regarded as helpful to the visiting dentists from isolated sections. These could attend the meeting, see the new appliances and make necessary purchases. This proved, however, more satisfactory to the dentist than to some of the exhibitors, and to one large supply house the filling of orders was found not to its advantage, and this was discontinued, and now this house is satisfied with the extended knowledge which these exhibits give to the members of the dental profession in attendance. For this, this house deserves commendation. It has taken the "barter and sale" idea, so obnoxious to some, practically from their exhibit, and reduces this to an educational feature worthy of the support of all progressive professional men.

The writer is well aware that the objection to these exhibits lies in the fact, that the attendance is diverted from the consideration of the professional work of the conventions, to that of the commercial.

While this is true, it must be remembered that underlying what we term the professional is the practical, and this latter phase needs, and must receive, cultivation and, to many minds, this is of vital importance. The isolated man can read, if so disposed, the journals, but if his attention is confined to these, he has lost the objective side of his study, and for this to be effective he must see and handle the new things and observe their working properties as disclosed by actual experience. This seems to the writer not only a proper method of education, but it has a value far transcending that to be found in illustrations, as they are presented in our periodicals. It would, therefore, be a source of regret if these exhibits should be discontinued, in obedience to the demand of some, who claim they are detrimental

to the best interests of professional work, and should, therefore, be dropped from convention programmes.

While this favorable view of the writer seems worthy of careful consideration and encouragement, there has grown up, in connection with these exhibits, a combination of side issues consisting mainly of proprietary medicines, the tendency of which has been to attract crowds to secure samples of various powders and mouth washes that not only make it difficult for the dentist seeking practical information to secure it, but the tendency is to convey the idea to the general public that dentistry is simply an enlarged specimen of the tonsorial department, with its tonics and antiseptics. While, possibly, this may be left to effect its own cure, it is nevertheless, in degree, demoralizing, and some effort should be made to correct its degenerating influence.

The importance of extending this idea of educating the isolated dentist cannot be overstated. It should be made obligatory upon every exhibitor and no sales should be permitted in the exhibition room. If the educational feature alone remains, all the objections to these exhibits, heretofore urged, will have no weight with the thinking men in dentistry.

There is one side of this question which has not been given the attention it deserves; in fact, it is doubtful whether the men who attend conventions, as a rule, are aware of it. The writer alludes to the methods usually adopted for raising funds necessary for the success of the various meetings and from whence these are generally procured. The natural inference would be that the expenses are met by the annual dues of the members, and the latter, as a rule, rest content as long as the treasury shows no deficit. It is, however, true that the annual dues pay but a small proportion of the expenses. These are principally met by the charges for space upon exhibitors. Through this source of income one State society was able to pay a very large sum for meeting conveniences during the three days' session in a prominent hotel. Possibly there would be no objection to this were it

confined to a legitimate charge, but there is no question but that it often exceeds this and really begins to assume the nature of what is known as "graft." It is within the knowledge of the writer that not alone has the charge for space been made, but an additional sum has been demanded from the exhibitors to help pay for the annual banquet. This fact is left to tell its own story, but when fully known will not be creditable to those immediately concerned or to a profession that can tolerate such methods.

There has been presented recently a peculiar exhibition of the power sought to be used to compel the supply houses to exhibit upon terms laid down by the association. A certain State society insisted that the exhibits should be entirely confined to the members of that body. A prominent supply house objected, stating that the membership was too small to make it valuable as a means of practical education. It was the desire of this house that their goods, sent at great trouble and expense, should be exposed to the view of the entire profession of the State, if willing to be present, whether members or not. With this reasonable request the committee in charge would not agree, and the supply house in question withheld its exhibit, and the profession was deprived of this valuable educational feature.

This seems to show, on the part of this society, an unfortunate mental condition, unable to appreciate the broad principle involved in this transaction. The position of the supply house was logically correct. If exhibits are of an educational value, then it is of vital importance that the largest number possible, should be permitted to see them. In the broader professional sense there should be no exclusion in any of our dental associations. All should be welcome, if not to take part in the exercises, they, at least, may be permitted to observe and listen. This effort on the part of this society carries us back to the early part of the last century, when all doors were closed to the dentist seeking knowledge and only opened by the golden key.

It is not supposed that this method of adding interest to con-

ventions, and thereby filling depleted treasuries, will cease to be popular, but it indicates a condition of affairs in dentistry that will, probably, explain, in part, the demoralizing state to which we have arrived and why it is so extremely difficult to infuse into the twenty-seven thousand dentists of this country the true professional spirit. The taint of commercialism began with the selling of proceedings to the highest bidder. The associations became copartners with trade, by this procedure, and from that period to this it has become more and more difficult for some to distinguish where commercialism begins and professional thought and practice ends.

It is gratifying to record that at the recent meeting of the National Dental Association it was decided to publish its own proceedings. This is a move in the right direction, and will be an example, if carried out, to be followed by all affiliating organizations.

If, then, all objectionable features be eliminated from exhibits and these be made to conform to their true object, that of aids to dental practical education, the true germ of professional spirit will have been established, and it is hoped that soon there will be developed in the dental body a clear conception of the line of demarcation which divides the commercial from the professional life, giving each its due weight in professional progress.

It seems to the writer that it should be more instilled into the formative mind of the young graduate in dentistry that the true professional man can maintain the dignity of his calling and at the same time deal justly with all fellow workers in their separate efforts to attain a higher development in our many sided and complex profession.

JAMES TRUMAN.

ORTHODONTIA DIAGNOSIS.*

BY DR. FREDERICK LESTER STANTON.
NEW YORK.

Diagnosis, scientific discrimination.

Orthodontia, the science that has for its object the correction and prevention of mal-occlusion. Quoting from Dr. Angle: "Diagnosis in Orthodontia, of course, precedes, and is entirely distinct from treatment; yet, it is of equal and, if possible, of greater importance, for it must govern each and every step that follows. On it may depend weeks, months and even years of valuable time to both patient and operator, to say nothing of the inconvenience to patient, parents and friends. On diagnosis *should*



No. 1.

depend each hour in the treatment and each appliance used; its form, structure, temper and tension, even to the last retainer. Yes, and even more serious than all of these, on the result of diagnosis must depend, to no small extent, the appearance and even the health of the patient for the rest of his life; for all our efforts make for the normal, which is health and beauty, or against the normal, which is the opposite of health and beauty, or deformity—for what is beauty but the absence of deformity?

If, then, diagnosis involves such responsibilities, what ex-

* Read before The New York Institute of Stomatology, April 2nd, 1907.

treme care should we give to it. If there was but *one* type of face, how soon would we become familiar with its requirements, with its harmonies, and all probable inharmonies.

But we know there are no two faces alike. Each patient so different in physique, mal-occlusion and art requirements. Hence, there has ever been great difficulty in making intelligent diagnosis of cases of mal-occlusion. The plan that has come down to us from its early dawn in the unfoldings of the science upon the judgment of the dentist. As there could be no definite aim nor end for such a principle, there would be no definite result; hence, the results of such empirical methods have necessarily been widely differing and often most unfortunate plans of treat-



No. 2.

ment." The ability to diagnose mal-occlusions implies a knowledge of the normal changes that occur in the growth and development of the teeth and their environments—to maturity. The amount of deviation from the normal and the probable causes that have acted upon the teeth to cause them to be out of harmony with the line of occlusion. It implies a knowledge of the art relations of the face and the result upon these lines that the course of treatment will leave. To the careful student of the literature of Orthodontia, there will be little to aid him in the chaotic descriptions of cribs springs, plates and jack-screws, that will enable him to apply scientific discrimination to the case in hand, to determine the etiology, the plan of treatment to pursue, and the prognosis.

Heredity and degeneracy will be firmly stamped upon his mind, the intermarriage of races of different types to produce the deformities, the inheritance of the teeth of the father and the jaws of the mother, or the inheritance of the mal-occlusion directly from either or both of the parents. If these are the premises from which the profession has used scientific discrimination to judge the cases, is it any wonder that the treatment has resulted in faces that are the caricatures of nature's plans. One has but to look in the art galleries and photographic studios to see mutilated and warped faces produced by the unscientific treatment or lack of treatment of mal-occlusion. How long will we have the theory of heredity and degeneracy—father's teeth in mother's



No. 3.

jaw (Ottolengui)? How long before our utterances on Orthodontia will cease to be antagonistic to collateral science and to art? How long will we lay at the door of heredity a mal-occlusion which we examine at 12, that had been caused by the premature extraction of a deciduous tooth at 5? How long will we continue to say that a child has inherited mal-occlusion because the mother presents a similar type of deformity? In the process of evolution, do we not know that individuals are developed and are modified according to the needs of their environments? In our descent, from the anthropoides, there has been a shortening of the jaws, a straightening of the line of the face, an adjustment of the demand of our needs. Mal-occlusions are not in-

herited; nature does not duplicate her mistakes. For in those nations who kill all crippled children at birth, the ratio of deformed children is as great in those countries as in the countries where cripples are fostered with the greatest care. The binding of the feet of Chinese women is as necessary to-day as it was thousands of years ago, when its practice was instituted. The mutilation of circumcision is as necessary to-day among those races that practice it as it was before the Christian era. Certain lower organisms that live in sea water are heliotropic (being attracted by sunlight), now if the water is acidulated less than one-hundredth part of one per cent., these organisms become apheliotropic



No. 4.

(receding from the light), thus we see by this change of environment these organisms assume exactly opposite properties.

The greatest growth and development occurs in the lower third of the face, where the teeth and bones we are interested in, are situated. The teeth, at birth, have already been determined by nature as to size and the osseous parts adjacent, have already been planned in the best possible way, and under a favorable environment, would mature, with the teeth developed into normal occlusion. Upon that environment and not upon heredity must we look to the causes of mal-occlusion. The causes of mal-occlusion being due to changes of environments, we should study the conditions that are normal and produce the normal, and any deviation must be noted with its effects upon the teeth. We know any in-

terference with normal breathing in the growing child produces definite forms of mal-occlusion and definite disfigurement of the facial line, other definite causes have been isolated. Heredity plays no part in our work, only so far as certain types are more readily preyed upon by adverse environment. For example: certain types having long and narrow air passages are more susceptible to the evil influences of adenoids, on account of the great ease which small growths are able to occlude these smaller air passages.

If the writings and teachings that have been handed down are unscientific, are not in accord with the teachings of collateral sciences, have we to-day a plan for intelligent diagnosis for mal-



No. 5.

occlusion, one that all can understand, one that does not rest upon the individual judgment of the operator, one that will suggest a treatment that all may employ, and one that has for its object the restoration of normal occlusion with all that implies for the good of the teeth, the general health of the patient and the best art relations of the human face, I think we have.

Dr. Angle has given the classification of mal-occlusion so simple, so efficient that it is at the command of all who will give it a few minutes thought. As a result of this man's study, he places at your command a point of diagnosis from which all may plan a successful treatment of any case of mal-occlusion. By research

and not by empiricism has he found the upper first molar erupts more constantly in its proper relation to the skull than any other tooth (in its meso-distal relation) and should be taken as the diagnostic point. Let us examine a few slides critically to prove or disprove the value of this teaching, "for both the truth and the lie agree in hiding themselves at first, but the lie continues to hide itself with effort as we approach to examine it and leads us, if undiscovered, into deeper lies—the truth reveals itself in proportion to our patience and knowledge, discovers itself kindly to our pleading and leads us as it is discovered into deeper truths."

In the first slide you will note the conditions of the teeth, maxillary bones and mandible, at about one year and one-half. At birth, the crowns of all the deciduous teeth are nearly completed and the cusps of the first permanent molar are calcified. The deciduous teeth are arranged in a regular arch ready to erupt as they usually do in good alinement; although the deciduous teeth are often found in mal-occlusion, it is usually due to adverse environment after their eruption. At birth the inferior meatus of the nose is practically unformed, the maxillary, sphenoidal and frontal sinuses, are post natal developments, the germs of the permanent teeth, occupying the maxillary sinuses. The nearness of the floor of the orbit and the roof of the mouth should be noticed, and the shortness of the ascending ramus. In the lengthening of the face, we have an increase in the size of the superior maxillary bones. To accommodate this growth, we must have a lengthening of the ramus and the diminution of the angle of the mandible, as will be shown in the slides that follow.

The lower first molar is probably as correctly placed in the relation to the teeth of the mandible as the superior first molar to the teeth of the maxillae, but on account of the mandible being movable, different influences of development partly change the relation of this bone and contained first molar in relation to the skull. Illustration 2 shows the development of a little later period. Illustration 3, represents growth at the sixth year and illustrates well how the first molars are guided into place by the deciduous teeth, upper molars erupting buccally, and the lower molars lingually. Illustration 4, represents completed dentition. Illustration 5, represents a case of mal-occlusion, the diagnosis of which will be; all of the inferior teeth are in distal relation to normal, the upper

first molar being correct in its relation to the skull. The ideal treatment would consist of moving all the lower teeth forward into normal occlusion.

(The first four slides are taken from the collection of Dr. F. B. Noyes, of Chicago.)

GOLD INLAYS.*

BY WILLIAM DWIGHT TRACY, D.D.S.,
OF NEW YORK.

How easily the words "gold inlay" slip from the tongue of the busy dentist of to-day! Only three years ago the man who used good inlays was the exception, while now it is safe to say that nearly every gold operator uses the gold inlay made by some one of the various methods, in his daily practice.

We know, of course, that certain men have used the simpler forms of gold inlays for many years, and that they have now and then recorded some signal successes, but the truly scientific and practical method of restoring extensive loss of tooth structure in the bicuspid and molars by the use of gold inlays, is of comparatively recent development.

While a good deal has been accomplished in the perfection of the various methods for making gold shells, solid inlays, and hollow inlays, it is only natural to believe that important changes and developments, looking toward a saving in the time necessary to construct the inlay, will be made in the future.

Now that this form of inlaid filling is attracting so much attention among the progressive minds in the profession, we may expect that those who become interested will contribute new ideas and new methods from which will ultimately come the perfect and accurate system of making inlays.

Why have gold inlays received such a quick and cordial welcome from the dental profession? Not because they are easy to make, you may be assured, and the operator who takes up this

* Paper read before the American Academy of Dental Science, April 3rd, 1907.

work hoping to find an easy way to avoid making a crown or inserting a large filling will be disappointed. The reason is that gold inlays offer to the dentist a rational, practical and humane means of making large restorations in the posterior part of the mouth, thus avoiding the adaptation of a crown, which, even when most carefully fitted, causes a positive disturbance of the gum. It also obviates the necessity for the long and tedious sittings incident to the insertion of a large gold filling, and enables the practitioner to make extensive restorations without loading the mouth with amalgam.

If any further reasons are needed to explain the popularity of this form of filling, it may be added that large cavities in hypersensitive teeth when filled by this method are practically immune from thermal shock owing to the protecting layer of cement which covers the dentine and holds the filling in place.

Gold inlays, when nicely fitted to cavities of proper shape, form splendid abutments for small bridges; when made with a small depression on the approximo-occlusal angle, they offer a permanent and satisfactory resting place for a lug on a removable piece, and when an exaggerated contour is needed to fill one of those unpleasant interdental spaces where food has been crowding down upon the gum, the gold inlay meets every requirement. Likewise, when it becomes necessary to open the bite, three or four large inlays placed in molars needing fillings, will establish the new relation and hold the occlusion in position while the other teeth are being tipped. In fact, the utility of the gold inlay is limited only by the ingenuity of the operator, and these are the reasons why it has been accorded such a welcome.

For the sake of convenience, gold inlays may be divided into six classes, as follows:

1. Solid cast inlays as made by Dr. Taggart, of Chicago.
2. Hollow cast inlays as made by Dr. Taggart, of Chicago.
3. Hollow inlays, swaged in two pieces and soldered together.
4. Hinman inlays.
5. Solid inlays flowed full with solder.
6. Solid inlays of gold foil condensed in an amalgam die, polished and set into the cavity.

This classification is made according to the relative value

and importance of the various methods as viewed by your essayist, and in giving a brief description of the different types of inlays, there is a temptation to dwell at length on classes 1 and 2; namely, the Taggart inlays.

One of the greatest achievements of modern dentistry is the perfection of the gold casting machine, by Dr. Taggart, of Chicago. By his method of casting the molten gold under the pressure of compressed air, the metal is forced into every crevice and inequality of the mold, and is prevented from shrinking, thus giving a perfect fit with clear and sharp margins.

A brief outline of the method follows:—

After the cavity is prepared, having definite margins and a free draught, Taggart's special wax is pressed into the cavity and the patient requested to bite; all surplus is trimmed away and the wax shaped to the exact contour desired in the finished inlay. This wax is now used as a working model and is prepared for investment in a fire-proof compound (also especially prepared by Dr. Taggart) by attaching a sprue to one side of the wax model. The model is now invested in a steel ring containing the fire-proof compound, which is manipulated much as one would manipulate plaster, the sprue being allowed to project. When hard, the sprue is removed and the investment is dried out over a "Bunsen" and heated until the wax is burned out; the wax being free from all impurity, leaves no residue or ash, and the mould is now placed on the casting machine.

A button of gold is placed at the upper end of the sprue hole where a little depression in the investment retains it: the steel ring containing the mould is placed upon the bed plate of the machine, and heat applied from a small nitrous oxide blow pipe. At the moment the gold reaches a perfectly fluid condition, the blaze is shut off, the crucible hermetically closed, and compressed air turned into it. All this is done by the pulling of one lever and occupies but a fraction of a second. The ring containing the casting is removed and cooled in water, and lo! you have a solid gold inlay of perfect homogeneity and perfect fit, needing only a little polishing before it is set in the cavity.

No. 2. To make a hollow cast inlay the procedure is the same, except that when the wax mould is complete, it is hollowed out from the inner surface with small spoon excavators, thus producing in the finished inlay as much of a hollow as may be desired.

This machine when on the market will enable the operator to make, with the utmost accuracy, gold inlays, splints, tips, small saddles, and even small partial plates, and in time must necessarily modify the present modes of practice to a considerable degree.

The hollow swaged inlay mentioned as class three is probably the most practical and popular form of gold inlay in general use for large restorations. Being made of pure gold, they present a good color, having the appearance of an ordinary gold foil filling, and the two pieces being united and reinforced with high grade solder, there is little fear of their becoming distorted when used as abutments for small bridges.

In brief, the method of making the hollow swaged inlay is as follows: The cavity being properly prepared, an impression is taken, preferably in Detroit Perfection Compound, and a small bite is obtained in beeswax. This impression may be invested in plaster, leaving a little wall of the investment standing up all around, so that amalgam may be packed into it; or a die may be made of Ames' Crown and Bridge Cement. For speed, the latter method recommends itself, but for accuracy and strength it would seem that the amalgam die must be superior.

Having obtained a perfect reproduction of the cavity in amalgam, it is placed in its proper position in the wax bite, and models showing the occlusion and adjoining teeth are made. The amalgam die is now removed from the plaster model and the inner shell, or matrix, of pure gold .003 of an inch is swaged into the cavity on the die, and trimmed, leaving a surplus of 1-32 of an inch on all sides. Before removing the gold from the amalgam die, cut out a portion of the gold from the bottom of the matrix, using for this purpose a small sharp lancet. Now place the amalgam die back in the plaster models, showing the occlusion; place a piece of softened Detroit Compound in the cavity, smear it with vaseline and press the models together, thus obtaining the bite and contour necessary to form perfect contact on the approximal surface. In trimming this compound to perfect shape, allowance must be made for the thickness of gold which is to form the outer shell.

Next, place the amalgam die with inner shell and the contoured compound in the swager, and swage the outer shell of gold directly over the compound. Trim to cavity margin, place upon

inner shell, and tack together with 22K. solder, and in finishing, leave a little overlapping margin of gold to be burnished over the cavity margins at time of setting.

In making this form of inlay, anneal the gold frequently, and if a tear should occur in forming the inner matrix at a point outside of where the hole is to be cut, pack in loosely some crystal gold, and flow with a small bit of 22K. solder. The names most prominently associated with the development of the hollow gold inlay just described, are Drs. Taggart, Nyman, D. E. Taylor, Van Woert and Dills.

No. 4. Dr. Thos. P. Hinman has also been a most earnest gold inlay operator, and appeared early in the field of work with a form of inlay both strong and practical. Dr. Hinman's methods, however, have been so ably and so interestingly described by himself in the Items of Interest, that it would be superfluous to make further mention of them here.

No. 5. The history of the simple solid inlay probably goes back to an earlier date than any of those previously mentioned, and has been made in various ways. The quickest way of making this form of inlay is to burnish the gold or platinum matrix into the cavity and fill in with crystal gold, loosely packed; remove from cavity and flow the matrix full of 22K. solder, and polish.

In the case of a large compound inlay being made by this method, it is safer to obtain die and models, and do the work entirely in the laboratory, investing the matrix before flowing in the solder, to avoid warping.

The objections to this method are that there is a large element of guesswork in building up the inlay; the danger of warping during the soldering, and a color that is not altogether desirable when the work is finished.

No. 6. In this class is mentioned the solid inlay made of gold foil packed into an amalgam or cement replica of the cavity, and then cemented into the tooth and polished. This form of inlay has been in use with some prominent operators, and is no doubt a good tooth saver when carefully made and set, but in the face of the present progress in the making of gold inlays, it would seem that further comment in regard to this method is unnecessary.

No doubt many other forms of inlays have been successfully used, but those enumerated in the foregoing paragraphs are the ones most familiar to the average dentist.

Gold inlays, like all other innovations in dentistry, are bound to suffer the abuse that follows in the wake of over-enthusiastic application of the method as a system for filling any and all cavities, regardless of the artistic requirements or mechanical needs of the special case in hand. If, however, those who are about to begin gold inlay work, will choose the cavities with discretion, carry out the cavity preparation with an intelligent regard for the mechanics involved, and use ordinary care and skill in the various steps of making the inlay, they will not be disappointed with the results.

This paper, while enthusiastically endorsing the gold inlay, is not written in the spirit which has prompted some of our best operators to say, "Throw away your gold mallets and pluggers; they are relics of the past." On the contrary, it is believed by the writer, that good gold fillings and good amalgam fillings, inserted by methods now used in modern dentistry will occupy an important place in our professional work for many generations to come.

THE PATHOLOGICAL SIGNIFICANCE OF ELEMENTARY SURGICAL PRINCIPLES IN ORAL TREATMENT.*

BY GEO. V. I. BROWN, A. B., D. D. S., M. D., C. M.

Were it not for the fact that the trend of present-day scientific advancement in all branches is in the direction of greater simplicity and more far-reaching study of the effect of primary principles, one might feel called upon to make apology for the use of the word "Elementary" in the title of a paper to be presented before this body, but surgery, even more than many other combinations of art, mechanics and science, is receiving its greatest benefits through simplification of the technic of its procedures and the application of first principles in leading to better understanding of ultimate results. Oral surgery, one of the newest divisions, has been very naturally somewhat slower in realizing the value of progress along these lines, and yet, for this very

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reason, one must feel that its need in this direction is the greater; perhaps in no other medical or surgical division, as applied to the treatment of human tissues and conditions, has the development of operative technic or methods pertaining to the performance of certain kinds of operations progressed so wonderfully; nevertheless, to the thoughtful observer it is apparent that at least a portion of the active consideration that has brought about these wonderful results might, with equally good or perhaps better advantage, have been applied to the study of the prevention of pathologic conditions whereby such a multiplicity of procedures has become necessary. The purpose of my discussion and of the illustrations shown herewith is to emphasize in a simple way some of these principles.

The second consideration that I trust they may also help to impress is the fact that diagnostic principles require accurate scientific development, such as has not hitherto been given, in order that the oral surgical operator may have definite rules of guidance upon which to base his reasons for treatment, that we all may have a better realization of the fact that it is in careful recognition of symptoms which, to the casual observer, might appear to be quite insignificant that differentiation between conditions of favorable or unfavorable prognosis may often be determined. We can no longer say that the value of the study of etiology and pathology is not appreciated by the rank and file, because there has, fortunately, been so much agitation in this direction within recent years, that appreciation of the benefit of such study has become general. A study of current literature, however, reveals the fact that there is danger of the application of such study not being as beneficial as it ought to be, simply because the elementary propositions upon which the more complicated pathologic theories depend are not comprehended. Practical results under these circumstances are not what they ought to be, therefore, in the evolution of these divisions of our subject any advancement towards the greatest usefulness to the end for which all treatment is undertaken will be hindered in just this proportion of unpractical and, therefore, more or less futile efforts to cure disease within the oral cavity.

Fortunately a suggested question has given me exactly the most desirable point of entrance upon my subject.

"Is the average well-taken Radiograph a safe guide in Diagnosis?"

In common with many others, I hailed the advent of the X-ray with much hope and began to use it in my practice in a limited way during the early period of its introduction to medical and surgical use. To-day I much more rarely have occasion to apply it. This is not because I do not consider it a valuable agent, for beyond doubt, its usefulness is now too firmly established in surgery and medical practice to admit of such question, but for the following reasons, it appears to me to be either unnecessary, or undesirable, in many classes of cases for which it is commonly advocated.

I have taken the liberty of using the term X-ray, rather than radiograph, as given in the question, because it covers a wider range and enables us to consider our question in a somewhat broader way.

Radiographs are useful in diagnosis in a limited field in which they are without competition, or equal substitute. In the location of foreign substances within the tissues of the body, for the diagnosis of fractures and results of fracture treatment; under some conditions of mal-development or other deformities of bone and for unerupted or mal-posed teeth. The X-ray has undeniable usefulness in the treatment of lupus, certain forms of ulcer, and cancer on skin or other surface that can be directly exposed. It seems to exert a beneficial influence in aborting the newly formed cancer cells in deeper tissues, and it is my practice after removal of malignant growths, to have the X-ray used for a time, as a preventive measure to guard against recurrence.

We hope that the use of this and other allied rays, as a means of directly assisting those processes through which nature effects her cures, by direct beneficial influence upon cell function, and as auxiliaries to carry vitalizing medicaments into and through the tissues, is yet in its infancy. What then are the present limitations to the advisability of its employment?

First, in the use of the X-ray for any purpose upon any part of the human organism, one should bear in mind the element of danger. Doubtless many of you may be inclined to scoff, and say truly enough that ill results have been caused by ignorance, or carelessness, but the lesson of the recent death of the man

who gave up his life to its employment in Chicago, and the story of the manner in which his thumb and hand withered away until amputation became necessary, and finally death resulted, has an undoubted bearing upon this consideration. I shall never forget the horror of burns as I saw them upon one who, on my recommendation, had it applied for cancer of the rectum, and whose suffering from the deep penetrating burns was far greater than that from the carcinomatous growth and without benefit.

It is not my purpose to pose as an alarmist, for I use this agent whenever it seems to be indicated, but my point is that in a measure at least, like anæsthesia, it should be given due thought before its continued application is recommended, and one should have reasonable knowledge of the skill of the person to whom patients are entrusted for its use, whether the purpose be radiography or therapy.

Second, there is danger in trusting a radiograph unless the lesion be a marked one, and the one who develops the negative quite reliable, even then he had best be in ignorance of what the diagnostitian expects to find. The uncertainties of photography are well known and even with photographic accuracy much often depends upon the direction of the apparatus, as was strikingly illustrated in the case of a surgeon whom I saw trephine through the skull on the wrong side to remove a bullet shown plainly in the picture, but which lay in the same region upon the opposite side of the head.

Third, instead of favoring more accurate diagnosis as one might expect, the effect of trusting to radiographs of tissue when with right application of simple principles of pathology and diagnosis there would be no need for such assistance, even if it were reliable, is, to say the least, undersirable and, with the utmost appreciation of the laudible spirit that has led some writers to bring forward the use of radiographs as an aid to diagnosis in dental and oral disease, I nevertheless feel that someone should sound a note of protest against placing dependence upon these pictures to any such extent as has been advocated. When one sees roots of teeth in situ, with surrounding alveolar structures, as pictured by the X-ray, thrown upon the screen while the pointer of the speaker touches here and there a light spot, or a darker area, and explains with the utmost confidence that this portion shows disease or that

does not, and finally lands himself, after a long series of illustrations, in position to prove by the findings of the radiographs that abscess about the roots of teeth with living pulps in the same are matters of quite common occurrence, and even before this supreme height of folly has been reached the observers have opportunity to wonder why no reference to differences of density in the histologic structures, as shown by the microscope in normal tissue, has been made, or to the fact that the microscopic, as well as the macroscopic appearance of tissue that has undergone degenerative processes is not always the same, and why, in addition to these, no explanation has been offered for at least some of the well-known inaccuracies of photographic work which might have effected these appearances which were pronounced undoubted evidence of disease.

I cannot help feeling that such use of this sometimes valuable diagnostic assistant is pernicious and that such exposures tend to belittle us in the eyes of scientific men.

Fourth, a picture of the parts is seldom necessary, even to discover the location of mal-posed unerupted teeth.

One of the notable exceptions to this was beautifully shown by an operation that I saw Dr. Schamberg do at the clinic of the First District Dental Society of this State. In that case he removed a supernumerary above which the real offender, an upper cuspid, still existed. Without the radiograph that had been previously taken I feel sure almost any operative would have failed to find the true cause of trouble. With this illustration, and there are doubtless many other instances that might be quoted along the same line, in proof of my original statement that sometimes no other agent can successfully replace the radiograph, I desire to call attention to the fact that the objection to habitual dependance upon this method of ascertaining the existence, or malposition of unerupted teeth is that it limits the likelihood of finding them, since it is but the work of a moment to explore almost any region in which such dental organs may be suspected, with reasonable assurance they can be located without further investigation and one is likely to do this more frequently if alive to the necessity and simplicity of frequent search of this kind.

None of the cases in which mal-posed teeth were the etio-

logic factors of pathologic conditions that I am to describe this evening were located with a radiograph, in several at least unless other diagnostic methods had lead to their discovery they would never have been suspected.

It is the frequency of these occurrences that requires to be more appreciated rather than the difficulties that attend them. My interest awakened by listening to your interesting discussion of third molars, recently led me to do a little investigating in this direction; in a group of less than one hundred and fifty persons, mostly young men between 21 and 30 years of age I located, without the X-ray, more than thirty third molars in various degrees of malposition and partial eruption. In a number of these there was little or no outward evidence of the existence of teeth. The significance of this is of far-reaching pathologic importance, in illustration of which I present the following cases:

I am showing only one slide illustration of malposed teeth. It is an old illustration, but I brought it to call your attention to the various situations in which I have found malposed teeth under pathological conditions. The point I desire to make is that if these diagnoses had not been led up to by other reasoning and other diagnostic methods, the disturbing teeth would not have been discovered, for one who merely depended upon the use of the radiograph itself would probably not have thought necessary to use it, but I do not mean that the radiograph would not have found them.

The patient whose malposed tooth was in the position shown had a history of seven years of such suffering as no unaffected person could understand; he had hyperaesthetic areas covering a large portion of his face and side of his head. The act of opening his mouth to take food caused paroxysms of pain. He had been treated at many hospitals and had had strychnine injected into him until his muscles became rigid. The real cause was this tooth lying across a branch of the fifth nerve. The radiograph could have shown it but no one suspected its existence until found. I found one in the same situation in the case of a woman who died in spite of an operation for sarcoma, and that tooth was not suspected until the growth had developed.

A rather favored position for these malposed teeth is in the maxillary sinus, almost in contact with the floor of the nose, and

posteriorly in the upper jaw. You are all doubtless familiar with this and can cite countless cases of trouble with the third molar. I operated recently upon a case that had been diagnosed as St. Vitus Dance by neurologists, the symptoms had that appearance. The character of pain accompanying the muscular symptoms led me to suspect trouble through absence of the third molars. She was about twenty-five years old. We found the third molar with the crown imbedded in the roots of the upper second molar. One might go on almost without limit in enumeration of the different situations in which these teeth have been found, but the point I wish to make is simply this, that where a tooth is missing it should be accounted for whenever there are pathologic conditions present. Fortunately for us where such teeth exist there is almost invariably more or less loss or destruction of the integrity of the alveolar structures lying over the crown of the tooth, and one can pass a probe through the gum without much pain in the suspected region. A slight sharp-pointed probe will usually pass through the honey-combed bone and the moment it touches the crown of the tooth, it is easily recognized. The exact position of the tooth is sometimes more or less uncertain, but you have to operate anyway, and as you open up your surface, you will readily find the direction of crown and root.

I want to call your attention to a slide which represents a section cut across the pericementum of the root of a tooth and surrounding alveolar structure. At this point the pericementum is quite normal. At another point you will see that there is no pericementum, the line between the alveolar bone and the tooth has become quite obliterated by ankylosis. It represents a form of loss of integrity of the pericementum not easy to diagnose from external examination, yet I have had a very large number of these people whose symptoms were exceedingly distressing, causing headaches and periodical pains in the head. This is a quite common condition among such sufferers, one with which every dentist ought to be familiar, and for which he ought to be on the lookout more than he is. These patients are usually typical neurotics, and show in various ways a tendency to unstable nervous development which would be likely to render them susceptible to serious pain which with more normally constituted in-

dividuals would not result from such slight disturbance. These individuals are in your hands every day and when they complain of pain of that character, just take the trouble to notice the occlusal surfaces of these teeth; such an one is in all probability a jaw grinder in the day time and keeps his jaws tightly compressed at night, and if you were to extract a tooth affected as the one shown in the slide, almost all of the adjacent alveolar structure would be inclined to come away with the tooth. This tooth, through structural changes in its pericementum, has become an active irritant to nerves involved. There is often the possibility of giving a great deal of relief in a very simple way in these cases. If one particular tooth is affected, you can easily change the occlusion of that tooth, or if a number of teeth be involved, a plate of rubber over the occlusal surface of the teeth sometimes gives much relief. The disturbance usually takes place at night. Frequently these are not persons who grind their teeth noticeably, and they sleep soundly at night, but clench their teeth so tightly that under this great pressure, the result is that when they let go there is a temporary hyperemia which by continued repetition becomes chronic and leads to pathologic change in the periementum, as loosening of the teeth or the opposite. (Another slide). We have here a number of slides which I am showing to still more markedly emphasize the idea of the necessity of accurate diagnosis. This is a section of angioma taken from the lower jaw. It is interesting to me because I failed to make a diagnosis until the microscope helped me out and was misled, by a history of recurrence after previous operation, into the belief that it might be malignant. (Another slide). We have here another one, a section of cyst wall of a cyst of the neck. It is interesting to know at this time on account of conditions which were misleading in diagnosis, because it turned the tongue over, and appeared to be in the floor of the mouth, when as a matter of fact, it proved to be a dermoid cyst of the neck entirely below the floor of the mouth and the sub-lingual gland which seemed to be included, was not affected at all. Some one else had made that mistake and previously attempted operation without result.

(Another slide). Is a spindle cell sarcoma. That shows the progressive stage from a slight degree of malignancy in the

same growth to round cell, and the third slide shows advanced malignancy of melanotic sarcoma in same tumor. Increase of round cells indicates increased malignancy. (Another slide). This patient had a plain history of maxillary sinus trouble for years. Removal of the diseased tissue arrested the growth for two years. Within a few months recurrence occurred after its last removal.

(Another slide). Here you see cancer. It is another maxillary sinus case which was originally like any other empyema in that region. I am impressing the fact, for it seems to prove distinctly my opinion that there is, sometimes at least, tendency to increase of malignancy. In this case there was a preceding degree of inflammation which was not necessarily malignant, but having been allowed to continue, finally became malignant

(Another slide.) This is another one of exactly the same history. You see there cancer beyond a doubt. The man from whom it was removed was brought to me for an operation. He gave a history of trouble in the region of the third molar. He had a necrotic condition of the lower jaw and evidently expected me to make a slight operation, which I refused to do. I do not know what the attitude of the surgeons here may be, but personally I do not think there is much to be gained by extensive operation and removal of the superior or inferior maxillary bones in toto, or too extensive re-sections thereof. Even if from a technically surgical point of view, the operation be successful, it does not seem to me that life is worth very much to such a patient afterward. Many times patients have come to me from whom sections of the lower jaw had been removed with portions of the rami left to cut and irritate their tongues and with faces horribly distorted. I do not feel that it is a great kindness, or good surgery to prolong such a life. I do not mean to discourage operations; I am operating upon these cases all the time, but I do feel that every dentist and every medical, and every other practitioner in any or all of the branches of medicine should learn to recognize these conditions earlier; more than that, one ought to strive to prevent the existence in the mouth of those conditions which lead to constant irritation. In the discussion of the third molar question, I urgently suggest that every man in the future be careful how the third molars in his practice are ac-

counted for. I do not mean the third molars that are normal, but I refer particularly to cases of persons who report not having had any third molars. In most of these cases the missing teeth are there if one can only find them, and knowing in advance that there is likely to be a condition which will make the eruption difficult, why is it not good practice to take steps to correct such interference with eruptive processes.

The following slides are section through heads of human embryos at from five to about twenty weeks. If you note the relation of the mouth and the size of the tongue in proportion to the jaws in each, and the positions of the developing teeth, the etiologic developmental relationship will, I am sure, be impressive in importance. I have the fullest realization of the good work being accomplished by orthodontists and would in no sense imply otherwise, and these remarks are not intended to be in criticism of the methods of orthodontists because they do a wonderful amount of good, but they commonly begin too late, and I desire to urge everyone to begin preventive and corrective orthodontic measures earlier. We have here a series of slides beginning at birth and containing as nearly as you can get them in progression until four years old. The base of these earlier skulls you will find almost entirely cartilaginous, easily influenced by any force that can interfere with the proper expansion of this comparatively yielding substance, and any such compression must make itself manifest in contracted ill-development of all associated structures.

The median suture through the hard palate does not entirely close until middle life, and one can usually widen the jaw so much as to allow of its separation. In this way much assistance can be given to arrested nasal or facial development, and thus afford better air passages, better breathing spaces, and give better resistance of the human organism to other conditions favorable to disease. The natural tendency of all teeth is in the direction of normal development if possible. They have a tendency to form in the right position unless there is something to prevent. Begin by widening the mouths of little children whose parents show the tendency to contracted nares and jaws, simply widen up. The result will be better developed, more healthful individuals, and very little tooth straightening to do.

I have a few slides illustrating hare-lip which elaborate principles that I have tried to impress without them. They are merely exaggerated forms of the same conditions you are dealing with every day. (Several slides illustrating the hare-lip). A final illustration shows you two pictures of a little one who had congenital ankylosis of the lower jaw. She was 6 years old and had never opened her mouth. She is particularly interesting to us at this time, not so much because of the operation for ankylosis, as for the fact that her features are quite similar in appearance to patients who need an orthodontists. In this case it cannot be malocclusion in the commonly accepted sense, because she never had any, as there was a complete unilateral fibrous ankylosis. The diagnosis was made by noting two simple things. The chin was a little out of the "central facial line," very slight yielding under pressure, argued against bony union; and on the strength of this I operated within the mouth and got the result that you see in the second picture, her mouth being capable of opening widely in the natural way without other assistance than the use of her own muscles. She had an overbite sufficient for one to place a finger between the lower and upper incisors, and that was how she previously took nourishment. Some months after operation, I am able to report complete cure, and free jaw movement, with no tendency to return to the former state.

SOME EARLY ORAL SYMPTOMS OF LOCAL AND CONSTITUTIONAL DISEASES.*

BY FREDERICK NEWHALL WILSON, M. D., NEW YORK.

The object of this paper is twofold: First, to bring to your attention some conditions of the mouth, both common and otherwise, the early diagnosis of which might often fall to the lot of the dentist; and, second, to elicit a discussion and report of cases which shall be of interest and value to all of us. If I make mention of some conditions which would not naturally come under the title of the paper, my excuse for so doing lies in my

* Read before The New York Institute of Stomatology, June 4th, 1907.

belief that they are both important and interesting enough to warrant it. The dentist occupies a peculiar position in regard to diseases of the oral cavity, for so many of these diseases present such mild early symptoms, the patient is not cognizant of their presence until his attention is called to it through an oral examination submitted to for some other purpose. With the health and happiness of mankind at heart it well becomes us all to be ever on the lookout for early symptoms of any disease, which in its infancy may be easily amenable to treatment and correspondingly beneficial, not only to the particular individual possessed of it, but also to safeguard the health, if not the lives, of those to whom the disease might easily be communicated. Just as the ophthalmologist often times through changes observed in the retina, becomes cognizant of an unsuspected kidney degeneration, so may the dentist by routine examination of the various structures in the oral cavity be the means of calling attention to some unsuspected and undesirable local or constitutional disease.

No doubt many papers have been read and much discussion has taken place in this Society on Syphilis, and for these reasons I approach the subject with some diffidence, but it is such a common disease and fraught with so much danger to all who come in direct contact with it, and the secretions from the mouths of syphilitics is so infectious, I am not sure too much could possibly be said about it, and so I am going to call your attention to some of its oral manifestations as seen both early and late in the disease.

The so-called primary lesion or initial sore occurs in several situations—the lips, tongue, gums, tonsil, and in point of frequency in about that order.

The positive early diagnosis is not so easy as might be thought, but suspicion should be aroused when in the above situations is seen a small hard nodule, covered by unbroken skin or mucous membrane, or a small, hard eroded or shiny nodule. The induration around it as seen in primary sores on the penis is often lacking.

The primary sore of the tongue is usually situated on the anterior part of the dorsum, less frequently on the tip, sides, or underneath. There is also a variety of initial lesion of the tongue known as the fissured chancre, a term which very well describes

its appearance, and still another where the induration is so widespread that it may be mistaken for malignant disease. The smooth chancres rarely cause any pain, but the ulcerated ones, both on the lips and in the mouth, are painful, and in the latter situation cause salivation.

Granular enlargement is usually present within two weeks from the time of the appearance of the initial sore, and is an important symptom in establishing a diagnosis.

A little later on we have the secondary oral manifestations of this disease in the so-called mucous patch, which occurs whether the initial sore is in the mouth or on some other part of the body. These patches are found on the mucous membrane of the lips and cheeks, the palate, tongue, and tonsil. Usually multiple, more rarely, single. Their appearances varies somewhat, depending upon the co-existence of accidental inflammation. What might be called a typical mucous patch is round or oval in form, slightly irregular in outline, grayish white in color, slightly raised. When redness or swelling is present it is usually the result of some mechanical irritation. Very often they give rise to no subjective symptoms, particularly when they are single, and their presence is often unsuspected until accidentally discovered. The secretion from them is exceedingly virulent. The above description applies only to the typical patch and must not be considered as including all the types. In place of the smooth edge of the patch we may find it deeply notched with a red areola around it, the surface of it instead of being smooth, may be warty, ulcerated, or deeply grooved. Several small patches may join, forming an area of very considerable size, simulating in appearance other non-specific affections of the mouth.

The tertiary symptoms of syphilis which occur in the mouth are the gummata and necrosis. The unbroken gummata, those that are not ulcerated or necrotic, form nodules of various sizes, projecting from the mucous membrane in varying degrees. Their color varies from that of the normal mucous membrane to red and yellow. It would require too much time and space to enter into a detailed description of the different appearance they may present, and I shall not attempt to give the differential diagnosis of gummata and other oral growths which would re-

quire a considerably greater length of time. Only a careful and complete history and examination can determine a positive diagnosis in an individual case. It should be borne in mind that the blood of syphilitics is also contagious. Furthermore, this disease is not to be considered entirely a venereal one, for it occurs in individuals who have acquired it in a perfectly innocent way, and it is partially because of this fact that through the medium of instruments and other apparatus, an innocent person may be infected, that I have made mention of it in my paper. Just how long a syphilitic under proper treatment may be considered a source of danger, is a matter of some doubt, but the concensus of opinion seems to place the time as a year from the date of beginning treatment.

GONORRHOEA OF THE MOUTH.

From the statements of various authors of works on genito-urinary diseases, gonorrhoea of the buccal cavity must be a very uncommon condition. Cases have, however, been reported in both infants and adults, but detailed symptoms of the infection seem to be lacking. The diagnosis could only be made from microscopical examination of the secretion, and suspicion of gonorrhoea would probably only be aroused by the patient complaining of more or less oral pain and discomfort, accompanied perhaps by redness of the mucous membrane, possibly erosion or a false membrane, and a coincident urethritis or ophthalmia.

From the frequency with which physicians consult the appearance of the tongue, one might naturally suppose it told a definite and complete story of all local and most constitutional states, but as a matter of fact it does not and can be only absolutely relied upon in a very limited degree. The so-called typical tongues of scarlet fever and rheumatism are not always present in these diseases, while the tongue's appearance as an indication of the condition of the mucous membrane of the intestinal tract is often anything but trustworthy as indicating the exact nature of the condition present. It is, however, a very great help in calling attention to the existence of some abnormal condition, even if it does not tell a very complete or consistent story. The normal tongue is moist, pinkish red in color, and should have no perceptible coating on it. The so-called furred tongue

is present in many conditions. Its pathology consists of epithelial scales, possibly some debris of food, but for the most part of millions of bacteria of various sorts attached more or less firmly to its epithelium. These innumerable bacteria are of interest to the dentist because their presence have a decided influence in his field of labor.

I shall speak of only one condition in which these bacteria play the chief part as causative factors, reconciling the mention of it by the fact that early signs of an infection may be the forerunner of a widely destructive process.

Just a word about the pathology of acute bacteriological infections of the mouth and more particularly of the jaws. These infections consist of an attack on the tissues by an unusual number of bacteria, many of which are found under so-called normal conditions in the mouth. Following the general rule, they direct their energies toward that part of the oral cavity which for some reason or other presents to them indications of lowered resistance. When their attack is well enough directed to promise serious trouble, nature comes to the front and precipitates an enormously increased number of blood cells of the so-called phagocyte or germ-destroying variety to the field of battle and then the war begins. If a sufficient number of phagocytes are brought into action, the invading bacteria are destroyed and recovery of the infected area takes place. But, on the other hand, if the number and virulence of the invading army of germs is too great for the force of phagocytes then the tissues are destroyed, and this destruction will continue until some power is brought into play sufficiently strong to check their further advance. The increased size of the tissues or swelling is not due to the bacteria present, but to the immense number of blood cells that congregate in nature's effort to destroy the germs and to wall off the surrounding tissues. In the majority of cases, nature is able to cope with the infection, and after a longer or shorter time, the infected area regains its normal condition. But there are a certain considerable number of cases where the bacteria are the victors and some outside assistance is necessary to overcome their action. In either event the early symptoms are pain, tenderness, swelling and redness.

THE ACUTE EXANTHEMATA.

Bearing in mind the value of prophylaxis in medicine and our inclination to institute all possible measures to warn our patients of impending danger, a few words in connection with the early oral symptoms of the acute infectious diseases, is certainly not out of place. The possibility of patients coming to the dentist during the prodromal stage of any of these diseases, places him in a position to make at least a tentative diagnosis of impending danger and to place the patient on his guard, both for his own benefit and for the protection of those with whom he may come in contact.

Smallpox, unfortunately, presents no early oral symptoms, so far as I know, the first evidence appearing in the mouth simultaneously with the appearance of the cutaneous eruption.

Chicken Pox. As in varioloid the eruption on the mucous membrane appears coincident with or immediately after that of the skin, and the appearance of the oral cavity would give us no information before the onset of the disease.

Scarlet Fever. In this condition the throat symptoms almost invariably precedes the cutaneous eruption, and our recognition of it or even suspicion of it may be of great value. A general redness is seen, particularly of the uvula, tonsil and soft palate. Unfortunately, it is not actually characteristic, being not unlike that seen in an acute tonsillitis, but its recognition has value as a warning sign to the onset of some acute infection.

Measles. In this disease we have a prodromal symptom in the mouth, one that is both constant and diagnostic. Koplik, in 1896, gave a very complete description of the appearance of spots which now bear his name, and I can do no better than to describe them in his words: "If we look in the mouth during the period of invasion we see a redness of the fauces and in many cases a few spots on the soft palate. On the buccal mucous membrane and inside of the lips we invariably see a distinct eruption which consists of small irregular spots of a bright red color. In the center of each spot there is noted a small bluish-white speck. The red spots with their accompanying specks of bluish white color are absolutely pathognomonic of beginning measles, and when seen can be relied upon as a forerunner of the eruption."

Diphtheria. It is in the throat that the first positive evidence is seen in this disease, and usually it is the tonsil that is the seat of origin. Early it is so difficult to distinguish between diphtheria and tonsillitis that a bacteriological examination is necessary to establish a positive diagnosis. The only safe method is to look upon all cases in which we see an exudate on tonsil, uvula or soft palate with suspicion, and recommend that immediate attention be given to its treatment.

I am very sure the instances will not be so very infrequent when care and attention to the appearance of the oral mucous membrane in general will enable the dentist to render valuable information to his patients by making a diagnosis of an impending infectious disease.

In the anaemias including chlorosis, leukaemia and pseudo-leukaemia the only oral symptoms observed are the extreme pallor of the mucous membrane and some dryness of the tongue.

In Addison's disease, irregular bluish-black spots are seen on the mucous membrane of the lips and oral cavity. They do not appear, however, before the general discoloration of the skin is well marked, and consequently are of no value in establishing an early diagnosis.

Nervous Diseases. Most of the oral symptoms associated with diseases of the nervous system occur during the course of the disease, and furnish us with but little evidence of real value in establishing an early diagnosis.

Anaesthesia occurs for the most part as the result of some cerebral lesion, with perhaps the exception of syphilis and hysteria, in which conditions it may also be present.

Hyperaesthesia and *Neuralgia* may be either local or due to some distant irritation of the nerves. Glossodynia Efoliativa and Herpes are examples of the local, the latter often occurring in conjunction with herpes of the face, lips and other parts of the body. These patients usually complain of a burning sensation in the tongue which is soon followed by a crop of vesicles, usually on the margin of the tongue, and varying in size from small to considerable size. Pain in the tongue is also present at times in the rheumatic and gouty.

I might in connection with neuralgias speak conversely of the possible presence of pain in the ear, vertigo, tinnitus aurium

and impairment of hearing, the result of reflex nerve irritation of the sensory branch of the fifth nerve of the ear from dental caries.

Equally true as to causation are certain ocular symptoms, the result of reflex nerve irritation from the teeth.

Paralysis of the Tongue, or at least some of its muscles, is a well known condition resulting from cerebral disturbance. It is said to often be one of the early symptoms of general paralysis of the insane.

Atrophy or *Hemiatrophy* occurs chiefly as the result of some nerve lesion. Tubercular disease of the vertebrae in the region of the occipito-attoid articulation has been mentioned as a not infrequent cause, as has also syphilis.

A more or less *dry* condition of the mouth is present in various diseases, both local and constitutional, and some of them are worth mentioning. Perhaps the most marked, and certainly the most persistent of all, is that known as *Xerastomia*. This is a rare disease, due to a very much diminished secretion of saliva and mucous. Its origin is thought to be nervous, although the only reason Butlin and Spencer give in their book on diseases of the tongue for so thinking, is because it occurs in neurotic individuals. Mental worry and shock have been mentioned as etiological factors, but none of the cases reported have thrown very much light upon its causation. Hutchinson first described the condition in 1887 in the following way: "The tongue appears red, devoid of epithelium, cracked and dry. The inside of the cheeks, the hard and soft palate, are also dry, the mucous membrane appearing smooth, shiny and pale. Dry crusts sometimes appear on the lips and mucous membrane of the mouth. Diminution in the nasal and lacrymal secretions has also been noted, as well as dryness of the skin and crumbling and falling out of the teeth. The general health and digestion has not appeared to be particularly impaired, but swallowing and articulation are more or less difficult.

The disease reaches its maximum intensity rapidly and usually remains without change so long as the patient lives. Hutchinson reports 36 of these cases, 32 of them being females and 4 males.

- 3 between the ages of 20-30.
- 5 between the ages of 30-40.
- 8 between the ages of 40-50.
- 18 over 50.

From these figures it will be seen that it is much more prevalent in the female, and a disease of middle and late adult life.

In Diabetes Mellitus we also have a dry, red and glossy tongue, associated with a diminution in the quantity of saliva secreted. In well marked cases the tongue is broad and thick, with irregular fissured surface. Sometimes coated, but more often red. Strumpell says the saliva is invariably acid. Sometimes the teeth decay and become loose, and it has been said that the second lower molars are the more frequently attacked in this manner, and that this fact may be of considerable value in leading one to suspect the kidney disease.

A dry mouth and tongue is also met with in that class of patients known as mouth breathers. These cases are well worth considering from the dentist's standpoint, because the interference with respiration through the normal channels not only has a decidedly deleterious influence upon the teeth, but upon the general outline of the alveolar processes and the palatine arch. In these cases it seems to me it is as much the duty of the dentist to call the patient's or his family's attention to the obstruction to normal breathing which exists, and explain to them the several important reasons why the difficulty should be remedied without delay, as it is for him to endeavor to treat the teeth and the alvolar processes. That this is not always done I know to be a fact from two cases occurring within a year in my own personal experience. A patient's health and development may be very seriously interfered with as the result of respiratory obstruction from enlarged tonsils, adenoids, or some intra-nasal occlusion. The dry mouth is both an early and constant symptom of this condition, and the dentist's opportunities for observation are of the best.

SOME LOCAL SYMPTOMS OF CONSTITUTIONAL POISONING BY METALS.

Lead Poisoning. It is a rather difficult matter to separate the early and late symptoms of this disease, for the manifestations of it follow no regular and constant course. Some time during the disease probably all the characteristic symptoms are present, but they vary within very wide limits in their relations to one another. The blue line on the gums at the base of the teeth is perhaps the most constant symptom, and as it appears early, in

the majority of cases, its recognition is of importance. This so-called lead line appears to be of a dark blue color at the margin of the gum. If it is examined closely with a magnifying lens, it is seen to be made up of fine rounded dots, some of which are discrete and some closely clumped together. At times the characteristic line is lacking and only a few isolated spots are to be seen, or we may have a line very faint and ill-defined. This is more apt to be the case when the teeth and gums are in a healthy condition. For some unknown reason the discoloration is especially well marked about the incisor and canine teeth, and more particularly those of the lower jaw. This blue line is to be differentiated from the dark colored deposits on the teeth and gums from other causes, and this may usually be accomplished by the use of the magnifying lens previously spoken of. If after this test there still remains some doubt, a chemical test may be made by applying hydrogen peroxide, which turns the discolored spots white, and then applying ammonium sulphid, which turns them blue-black again. While this blue line is one of the early symptoms of lead poisoning, it must be borne in mind that it is also very persistent, and may remain for months after all other symptoms have disappeared.

Chronic Silver Poisoning. In this rare condition almost the first sign that appears is the pigmented line along the edge of the gums. It has been described as being more of a violet color than that of lead poisoning, but this distinction would hardly allow of a positive differential diagnosis. Early recognition is important in these cases because it is a means of preventing further administration of the metal. A positive diagnosis can be made by applying chemical tests similar to those used in determining the presence of lead.

Phosphorous Poisoning is at the present time extremely rare in this country, the modifications adopted in the manufacture of matches, which was the chief source of the trouble, having for the most part eliminated it. So far as I know there are no early oral symptoms which would aid in establishing a diagnosis.

Copper Poisoning. There has been not a little discussion as to whether or not workers in this metal suffer from chronic systematic poisoning. There is, however, local irritation from the metal which present rather characteristic symptoms. A taste

in the mouth described as coppery and a green discoloration upon the gums and teeth are the oral manifestations. According to Kurth, this discoloration is greenish or olive, and is due to the staining of the tartar, since, when the teeth are perfectly clean, there is no staining.

It is probable that most of the symptoms of chronic poisoning in workers are due to the local action of the dust. It is not to be considered that all green discoloration of the teeth are due to copper poisoning.

Mercurial Poisoning. The first constitutional symptoms are to be found in the mouth and are characteristic. Slight or marked fetor of the breath, soreness of the teeth, particularly when brought forcibly together. Metallic taste in the mouth, the gums are soft and swollen, bleeding easily, increase in the amount of saliva. These are the early symptoms and are followed by the dark line at the base of the teeth.

TUMORS OF THE ORAL CAVITY.

Inasmuch as there exists in the mouth all the structures from which growths are made up, it is reasonable to expect to find here all forms of tumors. They are perhaps best classified under the headings, the benign and the malignant. Of the former I shall say but little other than to name some of them and their favorite location, and to call your attention to the fact that many of them have a strong tendency toward malignant change, and to urge you to look upon all of them with suspicion, and to recommend their early radical removal.

Fibromata, hard, slow-growing tumors are rather frequent. Their favorite situation is on the gums, where they appear as hard growths covered by mucous membrane. The base may or may not be pedunculated. They are also found attached to the periosteum of the alveolar process, where they are likely to grow to considerable size. Occasionally they are met with on the tongue.

Lipomata, or fatty tumors, are occasionally met with, as are also adenomata.

Naevi-Angiomata, or blood tumors, are rather frequent, and are found on the mucous membrane of the lip and tongue, where they appear as single or multiple tumors, blue or red in color,

depending upon the preponderance of arterial or venous vessels in their structure. They very often undergo sarcomatous degeneration of an extremely malignant type.

Of the malignant growths I shall speak only of Epithelioma, Sarcoma and Carcinoma.

Epithelioma and Carcinoma may be spoken of together inasmuch as their structure is practically identical. The lip is a very common location for it in men over 45. The tumor is not infrequently preceded by a crack or fissure of the lip or an eczematous patch which shows no tendency to heal. A small, hard nodule is felt, which soon ulcerates, and its base and edges become indurated.

It is also not uncommon of the tongue, where it is seen in all situations, but more frequently on the anterior half and edges. Males between the ages of 40 and 60 furnish by far the greater number of cases, although it should be borne in mind that early adult life and even youth are not exempt. The first signs vary within tolerably wide limits. It may commence as a blister, an excoriation, a fissure, a pimple, or a wart, in the substance of the tongue. Its development and growth may be slow at first, later extending rapidly. Eczemas of the tongue, more particularly that type known as Leukoplakia, or smokers' tongue, are very prone to carcinomatous degeneration.

Sarcomata. At least one type of this growth is not uncommon and that is the variety known as Epulis. Formerly all tumors of gums were known by this name, but at present only those hard, fibrous tumors which have their origin *in* the bone, *not on it*, are so considered. They are usually slow growing. Sarcoma of tonsil is rare, and sarcoma of the tongue is even more so. They usually appear as hard, painless masses, with no marked tendency toward early ulceration.

Tuberculosis. This condition in the mouth is probably in most instances an extension from tuberculosis elsewhere. The tongue is the more frequent seat and the disease may present itself first as a fissure, nodule, or as a number of small round points. Later ulceration occurs and the entire mass breaks down. In the absence of tuberculosis elsewhere in the body, a positive diagnosis would be extremely difficult.

One of the intoxicants which properly might come under

the head of constitutional is the acid intoxication, and as this condition has considerable influence upon the teeth, I have included it in my paper. My personal experience being of little value, I quote from an article recently written by Dr. Eugene Talbot, of Chicago, in which he gives his views based upon an observation of cases extending over a period of twenty years. In the International Dental Review of 1896 he wrote that "Pyorrhoea Alveolaris had two origins, one local, the other constitutional," and giving as his belief that the latter is the result of an acid auto-intoxication which has a very decided influence in producing erosion, abrasion and interstitial gingivitis." He claims that the excess of acid produced in the body through faulty digestive changes is not only eliminated by the kidneys, lungs and skin, but by the mucous membrane as well, and offers in proof of this the result of tests in a large number of cases in which the reaction of the mucous of the mouth was found to be acid. Contrary to the rather popular belief that uric acid is the chief offender, Talbot's investigation showed its presence in a very small percentage of cases. From his observations then it would seem as though a routine testing of the mucous secretion in the mouth might be of much value in arriving at the causation of dental changes and serve as a warning to a possible impending illness.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A regular meeting of the Institute was held at the Hotel St. Margaret, 129 West 47th street, Tuesday evening, April 2nd, 1907, the President, Dr. S. E. Davenport, in the chair.

The minutes of the last meeting were read and approved.

Dr. G. S. Allan: For the last year or more I have been experimenting extensively with, not exactly a new filling, but a combination of two old filling materials, and I have had, it seems to me, most excellent results. The two materials are the Ames phosphate of copper, C fluid, and Dr. Schener's Tin cement. My idea in combining the two materials was to produce a substance that should possess the good qualities of each, and I feel that I have succeeded. The cement is a combination of oxide of zinc and precipitate of pure tin, and works like an ordinary phosphate.

The copper cement, as you are all aware, is used with hydro-fluoric acid, and the oxide of copper as a powder, and I find that in combining the two I have the toughness and elasticity of the tin cement with the germicidal properties of the oxide of copper, and that the resultant mass is more plastic than either of the cements alone. I do not use any fixed quantities, but a proper average is equal parts of the two, oxide of copper and tin powder, in the mixture. The toughness of the compound varies with the relative proportions of the tin and copper constituents, a little experimenting will soon enable one to obtain the best results. I find I can put in a filling in a doubtful, difficult place with celerity and certainty of adaptation, results I could not get with any other material I know.

This combination has much of the sticking quality of the phosphate of copper, so that it will adhere to a plain surface and may be used in filling a cavity where the tooth is extensively decayed, where a regular cavity cannot be formed, and where there is a lack of what might be called "tooth substance."

It may be used advantageously in cases such as I had to-day, where the distal face of the second molar and the face of the third molar were both badly decayed; the second molar decay encircled two-thirds, if not three-fourths of the tooth, was difficult to get at, and to which it was impossible to apply a rubber dam. Yet I could keep it dry long enough to form a pasty mass of the new filling, and in three minutes or less I had the cavity filled with this new material.

The filling must be worked while in a plastic condition and pushed into every nook and corner. With suitable instruments this is readily done. While the filling is in a plastic condition one can easily trim the edges, wipe it off, and see that it is perfectly adapted to the cavity margins, allowing the final finishing to be done at the next sitting, as the material becomes brittle at first. After it has been in the mouth for a day or so it becomes as hard as an ordinary amalgam filling, and bears the stress of mastication without difficulty. Used in the temporary teeth of children, the filling is almost certain to give good results, and its preservative influence is most important.

In loose teeth, where other filling cannot safely be used, there will be no difficulty in inserting this filling, and benefiting by its

good qualities. Of course its black color prevents its being used except where it would be out of sight. I will pass around a little block with three teeth in it. One is excavated, but not filled, to show that it is not necessary to shape a cavity to any great extent. Test the material with a knife and it will be found very hard. I am much pleased with the permanent character of this filling, and think it will prove a valuable addition to our list of filling materials for that large class of doubtful, difficult cases where destruction of the tooth substance is extensive.

The President: We will pass to the subject of the evening, which is Orthodontia. The New York Institute of Stomatology has been greatly favored in the past few years in having had presented before it a large number of papers on this great department of our work by some of the best-known specialists in Orthodontia in the world. Our membership list has upon it a greater number of prominent orthodontists than the list of any other general dental society. The Executive Committee has prepared a rare treat for us this evening, having secured the consent of a number of gentlemen well qualified to speak upon this subject. The subject has been divided into Diagnosis, Treatment and Retention. Dr. F. L. Stanton will speak first upon the subject of Diagnosis.

(For Dr. Stanton's paper see page 154.)

The President: I take pleasure in introducing Dr. Frank A. Gough, of Brooklyn, who has kindly consented to speak to us on this department of Diagnosis.

Dr. F. A. Gough: I wish particularly to call attention to the importance of diagnosis to the general practitioner. He sees so many more of these young patients than do the specialists, and if he would at once recognize the conditions there is then opportunity for him to treat them immediately, or refer the case to a specialist. In either case there is great advantage in treating these cases early. A number of years ago there was a general opinion that there were very few cases of mal-occlusion in deciduous teeth. In late years, either they have greatly increased, or we have been observing them more carefully. I noticed a case the other day of a child five years old with three lower central incisors, most of the deciduous teeth never having erupted. We see Third Class cases and Second Class cases in deciduous teeth

many times, so it seems to me it is very important that a dentist, even if he does not intend to treat these cases himself, be thoroughly familiar with the classification and the diagnosis. Diagnosis, by the way, is more than mere classification. I believe that Dr. Angle's classification is generally accepted. There have been some attempts made to classify cases of Orthodontia, but nothing that is at all as systematic as Dr. Angle's, which is very comprehensive. The diagnosis of cases usually includes the examination of the oral cavity. It is not only with reference to the relation of the teeth to one another, their immediate distal relation, and so on, but also the relation which the nose and throat cavity may have, and the bearing any obstruction or nasal occlusion of any kind might have upon the case. In many cases it is necessary to have skiagraphs made. I recently had a case where there were five teeth missing in the lower jaw; the girl was 15 years old. The x-rays show the germs, if there are any there. Then it is very important to have good models, in order to make a thorough diagnosis, and we should also get as good a history of the case as possible.

The most difficult cases for me to diagnose are mutilated cases, cases where teeth have been extracted early in life,—perhaps all of the molars or all of the six-year molars—and it is sometimes difficult to determine, in these cases, the classification. I would also like to call the attention of the profession to the importance of sending these cases to a rhinologist for examination. I think that all cases of mal-occlusion are more or less associated with nose and throat trouble, and it is important that the character and extent of the abnormal conditions be disclosed in order to make a clear diagnosis.

The President: The question of Treatment will be taken care of first by Dr. J. Lowe Young, of New York.

Dr. Young: I have no paper, but will speak from a few notes which I have made. I think that is one thing we can say for Dr. Angle in his classification, and those who have mastered that classification: they are able to diagnose their cases before treatment. In the old days it was a case of trying to treat the upper arch and leaving the lower arch alone, which was not treating mal-occlusion at all.

Now each class may be divided into three, as Dr. Stanton

has said. Dr. Angle's classification has three classes with sub-divisions. Each of these classes may be sub-divided into three, namely, regular, mutilated and complicated. Regular where there has been no tooth extracted. In treatment of such cases it takes but a few months to treat them, and put all teeth in proper occlusion, and that is the proper treatment for all regular cases. If they are started young enough that can be done in ninety-nine per cent. of the cases. Of course, if taken at adult life it is different.

Second, we have mutilated cases, where teeth have been extracted. I can forgive men for extracting teeth years ago when they were regulating the teeth or rather aligning the teeth, but I cannot see any excuse for extracting teeth in an attempt to correct mal-occlusion. I will make the statement that I defy any man to show good, true models made from actual impressions where he extracted any of the thirty-two teeth, barring the third molar, where he got occlusion of the remaining teeth. Just as sure as there is a tooth out, some of the remaining teeth will be in mal-occlusion.

The age at which cases are treated, of course, necessarily makes quite a difference, and that may have a bearing on the extracting of the upper bicuspid in class two, first division case.

Dr. Case, of Chicago, who is treating many cases of mal-occlusion as I understand, treats more children of sixteen or older. It is a common practice of the doctor to remove the upper bicuspid, and I have been told he gets pleasing results on facial lines, but I feel sure that his results would be very much better if those cases were treated early in life and those teeth not removed.

The next division is complicated. Where teeth are missing, and whenever we have complication of that kind then we cannot always treat expecting to get the ideal. It is a serious problem to get children nine, ten or twelve years of age and expect them to wear an artificial tooth the rest of their lives. The case cited by Dr. Gough, with five teeth missing in the lower arch seems a very extraordinary one, I have never seen anything quite so bad. I have seen cases with an upper lateral missing and occasionally a lower lateral and bicuspid, but to get five in one arch is very bad. So in these complicated cases we must treat according to the case in hand, and while having the ideal in view, simply do the best we can.

Appliances to be used necessarily come into any treatment. One man may get results with one class of appliances, and another get equally good with another class. Anything I may say on the subject of appliances I do not wish to be taken as dogmatic in any way. The appliances that I will attempt to describe, and my use of them, are the appliances I have been accustomed to use, and it does not follow at all that they are the only things to use. The time required for adjustment of appliances is one that we should consider very carefully. I think it a great mistake, and one very often made, to try to get too many appliances in a child's mouth in a short time. We should consider that an appliance is a foreign body, and very much in the way of the tongue—I speak of fixed appliances. My custom is to put one band on without the pipe that is to accommodate the arch, (in this way it can be fitted more closely to the buccal surface of the tooth) clamp up tight, and discharge the patient for a week. At the end of the week, the soreness caused by the band has passed away and the child has become accustomed to the feel of it. If the second permanent molar is in place, there will be space enough created, and the band can be easily removed and re-adjusted. The band is now removed, the pipe soldered on the buccal surface and the band cemented in place. This I think should be done with all fixed appliances. I have been using for this fastening of the band a preparation of gutta percha. I make it real soft by warming it, put a thin coating inside of band, put the band in place and clamp it up. Then at that same sitting a band may be placed on the other molar of the same side, and let go for a week, and so on, until all four bands are in place. Then one arch is introduced and left another week, and finally the second arch is put in place, and in that way the child has become accustomed to these appliances without any great strain on the nervous system, and if the operator has been careful the child is not afraid to come and see him, which I think is of great importance where treatment of a case is to extend over several months.

(Illustrations on screen of mal-occlusion, and appliances for correction, including one of Dr. Hawley's Applications of lingual wire where deciduous teeth are in the mouth.)

The President: We will ask Dr. H. Clay Ferris to contribute to our information on the subject of Treatment.

Dr. Ferris: What I have to say will be very simple; possibly the simple things in practice become large to the beginner, and as I am a beginner, I speak from experience. One of the first things that interested me in the handling of regulating appliances was the tying of the ligature wire. Probably all present have made the effort to tie a ligature wire. Dr. Angle's method of tying it is so simple, but yet so difficult that I was unable to master it at first. He takes one turn about the tooth, or about the spur on the band, and passes it about the arch, giving the wire about three-fourths of a turn. The three-fourths turn, when demonstrated, will prove the fact that it will hold as much strain as if turned three or four times. This little point will prevent sore lips and gum tissues.

The same knot that is tied with the ligature wire for moving teeth can also be used to separate teeth for adjustment of the D band. This is done by passing the ligature wire between the teeth, drawing it tight with both hands and giving a three-fourths turn, cutting the thread, and turning the wire half a turn more on either side of the tooth to hold the band. In this way space enough to adjust the band may be acquired without difficulty, allowing the patient to go home with those wires held tightly in position and the ends turned in between the teeth; they are very readily removed and the D band adjusted.

I have with me a calliper that has been constructed by Dr. Hawley, of Columbus, Ohio, that might be of interest. In this instrument Dr. Hawley has given us a very pretty device which will be of great assistance for measuring the teeth, and also the arches of the mouth.

There is a little attachment for retaining which is practical, and of great value in moving the teeth and in settling the teeth after movement. It is in the use of a piece of G wire soldered to the lingual arch, and used as a retainer, carrying the tip of it over the labial surface of the lateral or central that we may have rotated, having that adjustable wire in contact with the corner of the tooth which is to be still further rotated. It can be adjusted by use of the Howe plier by pinching it down against that corner, and it will greatly assist in completing the case.

I do not know whether all are familiar with the goose-neck appliance or not. Dr. Angle has used it in places where there

has been a tooth lost from necessity. The second deciduous molar may have been lost from necessity and the erupting six-year molar is coming into place. Dr. Angle adjusts a band to the first molar, and on the line of the arch places a bar which he solders to the mesial side of the band, which crosses the space and butts against the first deciduous molar, where a little hook is passed into the distal marginal groove, and two fingers, lingually and buccally half encircling the tooth, are soldered to the bar. The erupting tooth then exerts its normal pressure, and completes the continuity, thereby increasing the normal development of the anterior part of the face and nose.

There is another practical method that may be of interest, that is the retraction of the cuspids. We all know the retraction of this tooth has been a difficult transaction. The anchor teeth are frequently moved mesially before the cuspid will move distally. Dr. Angle attaches to the band on the cuspid an extension bar, which is longitudinally soldered to the band in the axis of the tooth an eighth of an inch longer than the crown. On that bar is attached horizontally a short tube on which the extension bar is adjusted, that being removable in that tube, and by a slow movement, and a very slow tightening of the screw in the stationary anchorage on the molar, the cuspid is worked back readily. The necessity does not often arise for such movement, and it is consequently of value to have an appliance that will accomplish the result easily.

The President: We will now pass to the question of Retention.

The late Dr. Dwight M. Clapp of Boston, who was a member of the State Board of Registration in Dentistry of Massachusetts, would often ask the young men who came before him for examination, what was the most difficult step in the regulation of teeth; and what he expected from them in answer to that question was "the retention of the teeth after they had been placed in proper position." Dr. Stanley will favor us with his views on this question of Retention.

Dr. R. B. Stanley: In discussing the retention of teeth in Orthodontic operations it seems to me that it would be more profitable to discuss the *proper use* of retainers rather than the various forms in general use.

When we understand what is required in a given case, when our diagnosis has been thorough and complete, it is comparatively easy to apply the best form of retention to gain the best results; but to understand what is needed takes us back to the first condition, that of mal-occlusion, likewise into the future, when the final and best result obtainable will be an established fact.

From the first application of force to accomplish the movement of teeth we must have in mind that we are aiming to establish conditions which will favor a harmonious, normal development, or as near that as the conditions will allow. Therefore in choosing a retaining appliance we must remember that we are dealing with living, growing tissues, and that *after* the crowns of the teeth have been tipped to the normal line of occlusion there are other changes which will follow, along the line of development, which must not be checked—changes which will not follow if the retention is not intelligently applied.

The sole purpose of a retainer is to check *only* the tendency of the teeth to return to their former malpositions, without interfering with or hindering the development which moving the teeth has started, or, hindering the apices of the teeth from following over the crowns which have been carried to the normal line of occlusion. The interlocking of the cusps of the teeth and the force of mastication will do their share, and a very large share, if the retainers are properly constructed.

The length of time necessary to overcome the tendency of the teeth to return to their former malpositions varies in different cases, depending upon the age of the patient, the degree of mal-occlusion which formerly existed, and the inherent quality of the tissues to regain their normal tone. Other factors, such as the cusps of the teeth, muscular forces, and the use of the teeth in mastication, play an important part in bringing about the final result.

When properly constructed, the retainer consisting of bands cemented to the teeth, and connected to a stiff lingual wire is a most excellent device. Such a retainer must oppose the teeth only in their tendency to return to their former malpositions. If the lingual wire is *soldered* to the bands on the different teeth it will defeat the object of the treatment. As an example, in a child of 9 years of age the arches have been expanded, the lateral

halves lengthened, the central and lateral incisors carried forward and the result retained by placing bands on the anterior teeth and on the first molars, and these bands all rigidly connected to a lingual wire. We can imagine the result of such a method of retention if worn for any length of time. The apices of the roots will be held absolutely from gaining their correct positions over the stress of mastication, and the development which moving the teeth has so nicely started, will be prevented from taking place.

The rigid retainer has its place but it must be used with a knowledge of its limitations.

The plain band and spur, cemented to a tooth which has been rotated, is an example of ideal retention. The single tooth is checked in only one direction, namely, the direction toward its former malposition.

Under the head of removable retainers the vulcanite plate is perhaps the one most generally used. In mal-occlusion of Class I. demanding expansion of the arches and rotation of a number of teeth, this little plate, in conjunction with the band and spur on the rotated teeth, makes an ideal retainer. It performs its use as a true retainer should and has the advantage of being easily cleaned.

During the past year I have retained three cases of Class II, Div. II, by continuing the use of the expansion arch, ligatures, and intermaxillary elastice, the latter being worn only at night. I selected these cases carefully, and with due regard for any injury which might follow a protracted use of the operating appliances; also with a knowledge of the excellent care which the patient in each case gave to the teeth, and with the co-operation of the patient. With the idea in mind that proper retention should merely, in a less bulky form, take the place of the operating appliance after it has reached a complete stage of rest, I was highly gratified to note in each instance how readily the proper occlusal relations were established. At the same time I felt that the development which I had aimed to bring about was in no way interfered with.

To sum up, do not use retaining appliances as though the staves of a barrel were being bound together. Remember that some changes should take place during the period of retention, and also after the retainers are all removed. Use the form of retention which will *not* interfere with the movement of the teeth

in the right direction, but which *will* interfere with their movement in the wrong direction.

The President: Dr. Kemple is to speak on the subject of Retention. I take pleasure in introducing him.

Dr. Kemple: I was pleased to hear the remarks of the President referring to Dr. Clapp's examination question as to what was the most difficult part in the correction of irregularities of the teeth. He hoped the student in answering would say it was retention. Evidently Dr. Clapp had done considerable work in orthodontia. I believe every man who has attempted to treat any marked case of mal-occlusion will bear me out in saying that retention is the most difficult part of the operation. Failure to retain the cases cause the heartaches, not only to the operator, but to the patient, to the parents and to all the friends. Often the patient refuses to go through the treatment a second time when retention has failed.

In speaking of retention in general it is difficult to make anything more than general statements. The various forms of retaining appliances have had their advocates. The fixed and removable appliances have both their advantages and disadvantages their cleanliness or uncleanness depends principally upon the care the patient gives to the teeth. Dr. Stanley spoke of the retaining plate, perhaps one of the oldest forms of retaining devices, and one of the most valuable for retaining the expansion gained in the arch, and for preventing the rotation of upper bicuspids. But it will not prevent the rotation of the lower bicuspids, because of the shape of these teeth. It is an appliance that the children will wear, and they usually keep it very clean. I believe the most universally applicable of all retaining fixtures is the lingual arch, which was devised by Dr. Lourie of Chicago. He devised the lingual arch as a basis for retention of all cases of mal-occlusion, to be used in practically the same way as the expansion arch is used as a basis for the correction of all forms of mal-occlusion. In adjusting the lingual arch for retaining it can be done with such delicate fixtures and so placed that the patient will scarcely know he has anything foreign in the mouth. It is in no danger of being broken or displaced through the force of mastication and is very inconspicuous.

This arch can also be used for any little final adjustment of

the teeth as they are settling into close occlusion. The arch can be expanded slightly in different regions by simply stretching it with pincers. By allowing this lingual arch to rest on the lingual plane of the incisors, these teeth can be carried further forward by bending the arch a little lower on the lingual plane. With the lingual arch and ligatures the teeth can be drawn back to the arch, and the same result obtained as by placing a wedge between the teeth and the arch. After the final adjustment, the teeth having settled to place, this arch can be left in place indefinitely as a retainer.

The lingual arch, with all its possibilities, seems to me to be the most universal appliances for retention of which I have any knowledge. Dr. Stanley spoke of the cusps of teeth being one form of retention. The cusps of the teeth are all right in retention if the teeth have been otherwise retained for an extended time. One of my heartaches came from depending upon the cusps of the teeth and the overbite to retain a case where the lower front teeth had occluded considerably in front of the upper. After I had placed the teeth in their proper relation, and kept them in that position for a few months, I took off the retaining appliance. Just after removing the retaining appliance I went away to be gone for a number of weeks, and when I returned I had my headache. In the corrected case there had been a pronounced overbite of the upper incisors, and the cusps of the teeth were well developed, but they did not act as permanent retainers by any means. It was one of my bitterest disappointments to see that case go back almost to where it was when I started. I would not depend upon the cusps of the teeth to retain, until those teeth had settled to place very closely, and I felt that the retaining plate had been worn long enough, and even then I would watch it closely.

The President: Will Dr. Bogue kindly open the discussion.

Dr. E. A. Bogue: Dr. Stanton brought to us a subject on which he has often spoken to me. He relies on the first superior molar being more nearly in correct position than any other tooth when he makes his diagnosis. I think the statement that the first permanent molar is always in its correct position is not correct, and I have a slide that exhibits the ease with which that tilts forward, but the statement that the first upper permanent molar

is more often nearly in correct position than any other permanent tooth is to be carefully noticed by all of us who have to do with this work.

Dr. Young says if extraction had been practised, the remaining teeth would not harmonize. The reason why, he did not give us. The lower first molar, as everybody knows who has looked into the subject at all, has three cusp on its buccal side, the only tooth in the mouth that has, so if it is put into articulation or occlusion with any other tooth with less than four cusps, it won't work.

Dr. Young says also that better bones are made if the teeth are moved early. I want to make my thanks to him. If the deciduous teeth are moved sufficiently early, the crowns of the permanent teeth are carried with them into the position where they ought to be, and they are never irregular. I have a number of slides showing irregularities in deciduous teeth. Dr. Young also calls attention to the lingual wire with the hook on it, as Dr. Hawley recommended. We all recognize that wire as being the one Dr. Ainsworth showed us. Dr. Hawley has been ingenious enough to attach that to the ordinary fixture. It is a very good thing and saves a great many sore teeth.

He also exhibited an intermaxillary elastic in position to work with the very short hook. Dr. Head of Philadelphia asked: "What would be done if the intermaxillary elastic pulled the arches down?" I ventured to suggest to him the extension of the hook. Dr. Young told us of the trouble he had in the retention of his anchor teeth from the divergance of the points of the teeth, and showed us the bands he put into the arches to prevent his arches from twisting the molars. Dr. Angle, when he was here five years ago, laughed me to scorn when I suggested banding the arches as Dr. Lourie now does, but I find I was right. I found the same difficulty that Dr. Young did—he bends his arch, and I now put in a swivel.

Dr. Stanley spoke of the crowns which had been tilted out of the line of direct occlusion. There are two things to be said for that. One is that they need not be so tilted if we take time enough to do our work. Dr. Angle, I find, agrees with me that we should take time and allow nature to grow up to our work. There is too much haste in accomplishing this work of regulating.

Dr. Kemble made another point which I was very glad to hear him allude to in regard to retention. He said the cusps of the teeth are all right for retention if the teeth have been retained. He is quite right. The reason why, is, that children almost never shut the mouth tightly. We almost all keep our teeth apart; if we were to keep them together, the cusps would retain the teeth in their position as normal arches are supposed to do when normality exists.

Dr. H. L. Wheeler: I wanted to suggest in regard to Dr. Young's trouble about retaining the molar that if he used the perpendicular tube with the Ainsworth arch he would avoid that difficulty in a very simple and desirable way.

Dr. Stanton's remarks I scarcely feel like letting pass without comment. As usual he ridicules the idea of inherited tendencies, yet he speaks of types. What makes types but the tendency to continue along certain lines, which is produced by the ancestors having possibly by environment started in that direction. The evolutionists, Spencer and Huxley, showed the influence of inherited tendencies in their theory of the survival of the fittest. The survival of the fittest means simply and purely the influence of inherited tendencies. Take the development of the horse from a five-toed animal to a one-toed animal. In the process of gaining his livelihood he found it necessary to put the weight of his body on the center toe to escape from his enemies by flight. Eventually the descendants of the horse that had succeeded in being the quickest in starting and running from their enemies developed a greater strength in that middle toe, and those descendants who developed that peculiarity lived longer than those who could not. It was simply the survival of the fittest. Finally that middle toe being the chief factor, became the sole means of support of the horse's weight, the only toe that is developed covered by the hoof. Now if development can come along lines in which improvement takes place, so it can also along lines of degeneracy. If malformation does not make for a longer life, that particular animal will cease to exist. If nature has not endowed them, how under the circumstances may it be done. This talk about "papa's teeth and mama's jaws" can only be heard from those who are ignorant of the subject.

Another statement of Dr. Stanton's. He questions the judg-

ment of individual men who do not adopt his particular methods as empirical. I beg to differ with him. I am thinking of the noted English physician, and what he said concerning a cure for gout. Viz: "There is no cure for the gout; there may be one for the gouty." There is some method that meets a case, and which depends upon the judgment of the individual dentist, developed by education and observation. No one method or class will always do the work.

Dr. Stanton: It was not my purpose to inject in this discussion of *Orthodontia* the hackneyed subject of whether acquired habits are transmitted to offspring. My plea was for more scientific investigation and for our profession not to hide behind heredity and degeneracy, as the causes of mal-occlusion; for upon this unscientific diagnosis must rest the unscientific and disastrous results produced by treatment delayed and devised on such premises. Dr. Wheeler finds that I am the first scientist to even advance theory of our descent from the anthropoid apes. I am very glad of this opportunity to enlighten Dr. Wheeler upon his ancestral tree. Huxley (1863, "Man's Place in Nature") brings forth the highest scientific arguments: Man is descended from animals; that he is a mammal; that he is more closely related to monkeys, and among these to the anthropoid apes. The deciduous and permanent teeth of man bear an astonishing resemblance to the anthropoid apes, differences are only found in minor details (the exact shape and relative dimensions of the cusps). The differences that exist in the dentition of anthropoid apes and man are less than those between anthropoid apes and other monkeys. The whole skeleton and part of the skull of man and the higher monkeys present certainly some marked differences, but here again, the differences are less than between the anthropoid apes and other monkeys. The digestive tract furnishes another argument in favor of the affinity of the anthropoid ape to man. The human caecum is furnished with the very remarkable and strange vermiform appendage. This is identical with the vermiform appendage of anthropoid apes. Yet, none of the other monkeys possess it.

The history of development is very often an excellent guide to tracing the relationship of organisms. Embryology shows all the placentas of anthropoid apes are of the same discoid types as

that of man. Deniker and Selenka have established a similarity in the peculiar arrangement of the umbilical cord of man and the higher apes. Metchnikoff concludes from the above evidence that man and anthropoid apes had a common origin and that the first men were probably ingenious children, born of anthropoid parents. Wiedersheim has found fifteen organs which show, in human species, a considerable advance of those of anthropoid apes.

If Dr. Wheeler still thinks I stand alone in the theory of our descent from anthropoid apes, I will offer the following experiments: Gruenbaum, of Liverpool, in examining the behavior of the serum of animals inected with human blood, found the same precipitate when the blood of the gorilla, chimpanzee, ourangoutang was injected into the serum of similar animals, and it was impossible for him to distinguish this precipitate as regards quantity and quality, from that which is obtained from human blood.

It is therefore evident that there exists between the human species and the anthropoid apes not only a superficial analogy of body and of the principal organs, but a close blood-relationship.

(Reference—"Nature of Man.")

Dr. Ferris: I would like to give Dr. Wheeler an example of acquired traits. Lou Dillon is the best living example. It is said when Lou Dillon is put to the whip she will trot rather than run. Will her offspring run or trot when put to the whip? All raisers of horses know that it is an acquired trait, and that they will return to the native act of the species.

Dr. Kemple: I would like to ask Dr. Ferris one question. If evolution is a fact, how do we account for changes in species, unless acquired traits are transmitted.

Dr. Ferris: Careful study of comparative anatomy proves that the animal has what is required to support life. Man has four molars less than the primeval man. The molars are not required in the sustenance of life. We find in all species, that as the environment changes, the animal changes to meet it.

Dr. Stanley: May I ask Dr. Ferris just one more question? I would like to know if he knows of the existence of a human skull, that contains four more molars than is contained in the human skull to-day?

Dr. Ferris: No, Darwin and Huxley said so.

The President: There seems to be material here for another

meeting. The hearty thanks of the Institute are given to those gentlemen who have spoken so delightfully on this subject of orthodontia. Adjourned.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A regular meeting of the Institute was held Tuesday evening, May 7th, 1907, at the Hotel St. Margaret, 129 West Forty-seventh street, the President, Dr. S. E. Davenport, presiding. The minutes of the last meeting were read and approved.

The President. Under the head of Communications on Theory and Practice we will have a few words from Dr. Merrit concerning patents.

Dr. A. H. Merrit. This Society has so long and so consistently opposed the taking out of patents by professional men, believing it to be unprofessional, and opposed to professional progress, that a case that recently came before the United States Circuit Court of Appeals may be of interest to the members, as illustrating one of the reasons for such opposition.

The facts of the case are briefly these: The Eastern Paper Bag Company, in the pursuit of a policy not unusual among manufacturers whose prosperity rests upon patent rights, had been purchasing new inventions as they appeared, and stowing them carefully away. In the course of this procedure they had gained possession of the Liddell patent, which was concerned with folding the bottoms of paper bags. This patent they had owned for seven years, and, according to their own admission, they had never had even a model made of it. The Continental Paper Bag Company built a machine, putting it at once into successful commercial use, which the Eastern claimed to be an infringement upon the Liddell patent. The Circuit Court, while expressing grave doubt as to whether this was a case of injunction relief, granted the injunction and the case was appealed. The Court of Appeals affirmed the decree of the lower court, Judge Aldrich dissenting. It is with this dissenting opinion that we have to do. Judge Aldrich took the position that while the patent in suit had been infringed, relief should be sought at law for the protection of such legal rights as existed, and that it was improper to em-

ploy the equity process when a patent had been deliberately held in non-use for a wrongful purpose. He contended that a condition of monopoly, created by the policy of the Eastern Company and protected by the equity court, was in contravention of the manifest purpose of the Constitution of the United States, which gives Congress the power to secure to inventors for a limited time the exclusive right to their discoveries, "to promote the progress of science and useful arts," and was likewise in contravention of the statute based up the Constitutional provision which was intended to safeguard the legal right to make use and vend a particular patent.

Says Judge Aldrich: "There was no thought of giving countenance to the idea of acquiring and locking up inventions, and improvements upon inventions, to the end that the general benefits of inventions should be turned back; the idea that a court of equity should help to accomplish such a result is contrary to the spirit of equity and offends public policy. Reasonable consideration of wise public policy and of principles governing equitable jurisprudence require that equitable aid, through the discretionary arm of injunction, should be withheld from one who attempts to unreasonably and inequitably oppress the general public and to so use a naked legal right, which inheres in a situation involving a Government purpose, and into which the public right in a sense enters, as to offend and wholly reverse the plain spirit and policy of the fundamental law upon which the right is founded."

In a paper which was read before this Society about ten years ago by Dr. J. Morgan Howe, this statement is made, which will serve to give point to the above observation: "We know from experience and observation in our own vocation that patents have been a hindrance to progress by preventing improvements being made on devices which could be made more practical; by preventing the production of new devices if they have in them even a modicum of the ideas that have been patented; and by suppressing the production of other patented inventions by shelving, when the sale of something in the market would possibly be reduced by the substitution of an improved device.

There are many inventions now hidden from general knowledge that would facilitate work and suggest further advances,

but for the pecuniary interest created by patents in smothering such devices in order that the market value of certain other things may not be lowered."

I feel that this Society, and every professional man interested in the welfare of his profession is to be congratulated that the courts have taken this view of the matter, and that there is a possibility that this iniquitous feature of our patent laws and one from which we as a profession and the public in general have long suffered, may at no remote date find a legislative remedy.

It is inconceivable that there should be found within the ranks of a profession any who should be willing to lend themselves to a system so obviously inimical to professional interests, but that there are such is all too true.

The rebuke administered in this dissenting opinion strikes at an evil much more prejudicial to industrial and professional welfare than many corporation practises which have occasioned loud and persistent denunciation.

Dr. H. L. Wheeler. What I will say is really a continuation of the subject Dr. Merritt has spoken on. I have here a clipping from the *New York Times* of March 19th, dated London.

This article indicates that the evil of buying patents for purposes of suppression has become so widespread that dental practitioners are not the only sufferers and that the British Parliament is planning to cure the evil by making it possible for any one to make a patented article in a reasonable length of time after the patent is granted, if the article is not produced.

I hold in my hand the March number of the *Dental Cosmos*, which contains a cleverly written paper on a new method of obtaining plaster casts in difficult places. I will read a short paragraph on the subject of mixing plaster: "I then mix some S. S. White impression plaster in the ordinary way," etc. .

This from the journal that has seemed to think it necessary to impress the profession with the idea that its pages are absolutely fearless, and published in the interest of the profession! Would the kind of plaster have been designated had it been the Dentists' Supply Company brand or some other dealer than those publishing the *Cosmos*?

Why not carry this scheme of advertising one's wares to its logical conclusion and mention the S. S. White rubber bowl, the

Consolidated Company's carbolic acid, and the Dentists' Supply Company's oil of cloves?

It should be remembered that the material mentioned is not a distinctive one, manufactured by the dealer under a designated formula, but can be procured in any quality in the open market.

Has this well-meaning young man (the author of the paper) been started in by the college he attended with the idea that in order to obtain eminence in his profession he must mention the fact that he used the particular brand of material purchased from the supply house publishing the particular journal that he hopes to express himself through, or is this an isolated case, where the young man possibly thought that the dean of his college had accepted the brand of this particular company, and so it was proper to mention the trade mark always?

The President. Both Dr. Merrit and Dr. Wheeler have brought forward very important principles, deserving a full evening. They will give us subject for thought even if we do not discuss them at this time.

We are all much pleased to see that Dr. Stockton, who has been a member of the Institute for many years, is with us to-night. The Chairman voices the wish of all in asking him to say a few words.

Dr. C. S. Stockton. Somebody once made a very wise remark. You all have heard it—"Time flies." I remember the last time I met with this Society—and I can scarcely realize to-night that nearly two years have passed away since then. It was when Dr. Jenkins read his paper on porcelain, and I had the pleasure of saying a few words in commendation of the paper, and also of the doctor. When I took my seat the gentleman who sat beside me said, "It will be strange some of these days to be at a dental meeting and not see and hear you," and I said, "Oh, no; you will soon forget me." He put his hand on my shoulder and said, "No, Stockton; you are the best loved man in the dental profession to-day." That saying to me was a most delightful one, and I shall ever hold in sacred remembrance and in pleased recollection the memory of that dear brother, Charles F. Allan, who little thought, being a younger man than I, he would pass away first. He was a splendid fellow, and I to-night pay my little tribute to his memory. He was a good dentist and honored

dentistry; he was a worthy citizen and honored the State; he was an honest man and he honored humanity. Let us all so live that when we pass away our memory may be as dear to those who are left as is that of Charles Allan to us to-night.

The President. Gentlemen, we are fortunate in having obtained the attendance this evening of a member of our Society who will speak to us to his credit and our instruction on the subject of the "Pathologic Significance of Elementary Surgical Principles in Oral Treatment," and as a collateral question, "Is the average well-taken Radiograph a safe guide in Diagnosis?" I have the pleasure of introducing Dr. George Van Ingen Brown, of Milwaukee.

(For Dr. Brown's paper see page 165.)

The President. You have all heard Dr. Brown's delightful presentation of this subject. Before the discussion is opened the statement should be made that Dr. Brown has been ill and he was prevented from sending an abstract of his paper; therefore, the gentlemen who are to discuss it will have to depend upon what they have heard. The gentleman who is to open the discussion is an old friend of ours, who has often been of service to us and is too well known to need an introduction—Wendell C. Phillips, M. D.

Dr. Wendell C. Phillips. I would like to preface my remarks by a few words of congratulation upon the portion of the programme which preceded this excellent paper. It shows that the Institute is in earnest in trying to stamp out evils associated with the patenting and copyrighting of instruments, formulas and trade journalism. It does not surprise me to hear that this Society has established a scientific dental journal that will represent journalism of the type that you need, and which would not be tinged with commercialism.

The paper of the evening is not easy to discuss, and I regret that I could not have read it previously. The doctor has hit upon some very important points, and I shall say but little in criticism.

In our profession our careful consideration and our most earnest efforts must be in the way of prevention, and it is the men who are able to prevent, or teach how to prevent, that become the leaders. It is not so difficult to learn treatment, but

prevention and diagnosis are difficult. Pathology has deservedly taken a very important position in the last few years: it helps us to know what is present, and helps us to know what to do.

Now, I want to emphasize one point. There is danger in relying too much upon the aids to diagnosis—mechanical and otherwise—to neglect the clinical study. In the hospitals to-day the house staff spends hours with the microscopic study of bacteriology—hours of blood examination—and to a considerable extent that time is spent to the detriment of clinical study of the cases, and we should never lose sight of the fact that while the radiograph, blood examination, pathological conditions and study of the microscope are of extreme importance as aids to diagnosis, the clinical study of the patient in all its aspects stands first. Now as to the radiograph, especially in connection with diseases of the head. Of course, my department is a little bit different from that you are giving so much attention to. The radiograph and X-rays, electric light, etc., are very important as aids, and should be employed, but I should never want to make a diagnosis of disease of the accessory sinus of the nose by these alone and without a careful clinical study and rhinoscopic examination in every case.

Now, so far as the radiograph is concerned, if we could get perfect radiographic representations in every case, it would be helpful. I always make a diagnosis before having the radiograph. If the radiograph confirms, then I feel sure. Radiographs of the head are difficult, and so far I have found only one man who has been able to make good ones.

As to the use of the X-rays in pathological conditions, about which the doctor has spoken to-night, I am extremely skeptical. It sometimes produces temporary changes, which seem to be along the line of improvement, but there does not seem to be much permanent effect upon malignant disease. Lupus it does cure. It is most obnoxious to any man of judicial trend of thought to read the wild claims made by enthusiastic electrotherapeutists. I saw one published article in which it was claimed that the X-ray had cured cases of appendicitis, and I have come to take all statements of these men with a very large grain of salt.

The doctor touched upon another point which is decidedly debatable, and that is the question of benign growths becoming

malignant. They may at times, but I doubt if it is ever the rule. A malignant growth is usually of malignant character from the beginning. It is of vast importance to make an early diagnosis of the malignant growth, inasmuch as early diagnosis and early operation is the only hope for the patient. As soon as malignancy affects the surrounding glandular structures that case is sure to be fatal. I had the good fortune to discover a carcinoma of the vocal cord at an extremely early stage. It was a small nodular mass about the size of a pea. At the time I thought it a papilloma. I removed it and the pathologist reported that it was a carcinoma. The man was about sixty-three years old, and no other tissue was involved. This was nine years ago. The man is living to-day and is perfectly healthy. A suspicious growth about the mouth or teeth should never be allowed to remain without diagnosis. I quite agree with the doctor that it is proper to remove the superior maxillary bone, especially where there are eye symptoms—bulging of the orbit—and other symptoms of extension. Here the operation is attempted to prolong the patient's life, and relieve his sufferings. It is doubtful if it does prolong life materially; it does disfigure and it always recurs except in an occasional case. Surgical measures as a rule are of no permanent avail except in cases where the diagnosis has been made early.

Dr. M. I. Shamberg. I am sorry not to have been here earlier to hear Dr. Brown's paper upon this subject, for it is of much interest to me; but I had hoped from the discussion of his paper by others to glean its contents.

I am glad to hear the speaker who has just finished sound a note of warning with regard to accepting the reports of cases cured by X-ray and other electro-therapeutic means. Workers in this field become excessively enthusiastic, and are oftentimes carried away to such an extent that they jump at conclusions and report cases as cured which, if followed, would be found to be far from cured. I must say, however, that the X-ray does exert a distinct therapeutic effect, and is of decided value in well selected cases. I have seen the beneficial influence of the ray upon many cases of otherwise refractory skin lesions. Acne, lupus and epitheliomas respond nicely to the X-ray, but its influence upon lesions of the mucous membrane is disappointing. In only one

case of malignant growth within the mouth did I get an absolute cure from X-ray therapy. Most of the other cases which were of the inoperable type ran on to fatal terminations.

The report of cures of superfical epitheleomas involving the skin of the face I believe to be authentic, for in these cases there is little chance to be mistaken. I have treated a number of these cases and have had such universal good results that I would recommend the X-ray in preference to the knife.

The diagnostic value of the X-ray is so well appreciated that it is scarcely necessary for me to speak upon that phase of the subject at this time.

I am tempted to mention a case that came to my office today, because it is typical of many that I see. The surgeon had removed from the cheek of the patient what he believed to be a cyst; the operation was followed by the formation of a disfiguring fistula, which has continued to discharge since the surgical intervention. In the examination of the mouth, the dentist who referred the case to me suspected that possibly the entire trouble might be with a tooth or with the jaw. I made a radiograph and found an abscess on the lower first bicuspid, which tooth showed no evidence of caries. It was natural, therefore, that it should have gone unobserved as a factor in the trouble. The abscess, instead of breaking into the mouth, pierced the alveolar plate further down and formed a fluctuating mass within the cheek. This, the surgeon looked upon as a cyst, and the operation followed with the resulting fistula. Now I have seen many cases of that nature which require close attention to tooth pathology to arrive at a correct diagnosis. Had the radiograph been taken before the original operation, the pus could have been evacuated into the mouth and external facial disfigurement averted.

Dr. E. A. Bogue. I think Dr. Shamberg properly emphasizes what Dr. Brown has told us, that the diagnostic principles of medicine require accurate scientific proceedings. Dr. Brown's title, "The Pathologic Significance of Elementary Surgical Principles in Oral Treatment," is a little peculiar and not perhaps comprehensible by those who have not gone far into elementary surgical principles. For example, we are all learning more accurately that the mouth is the way by which a very large proportion of diseases enter the system, and it is only lately that the

Board of Health is beginning a careful examination of the school children, with the result that when they are able to take hold of these early manifestations of disease, the health of the children has improved from 50 per cent. upward. I think that is a confirmation of Dr. Brown's views. Indeed, a paper read a couple of years ago announced that there were thirty-seven different species of bacteria occupying the mouth, some benign and some malignant, but nobody has, as far as I know, classified them, and no one has cultivated them all and found out what their qualities are; so we have a field opened to us this evening.

Dr. Brown has called attention to another thing—that in our daily practice we should learn from clinical experience that we are too apt to pass by evidences of disease that we perhaps do not consider within our province. Having been of that sinful class, I find day by day my attention is called more to manifestations that are present and not always manifest to the patient. I hope Dr. Phillips will tell us a little more why he is so firmly convinced that malignancy does not commence by a benign growth. I have seen the assertion made as if there were no doubt about it, and Virchow was, I think, the first to assert that benign growths could become malignant. Dr. Phillips refers to the danger that we may come to rely too much upon the aid of X-ray in diagnosis. That seems to me to be a kindly warning to go back to our books and study a little more. He says we ought to have a clear knowledge of clinical conditions. How many of us have? Especially those of us who are so driven we can scarcely take our hands off one patient before putting them on another.

There is one point that Dr. Phillips incidentally mentioned, and that is that most of us are contending about abnormality; while the definition of normality is in dispute. As I understand it, normality is the working out to perfection of the work of development. We begin low down; we begin with the fish and we go on to the angel. Somewhere in between there is the perfect physical man, whose beauty consists in the adaptation of all parts to all the other parts in the best possible manner. Some allusion was made by Dr. Brown to orthodontia. He has probably seen more than the rest of us of the obstructions to the path of rectitude. We may take that condition at a very early age—I

don't know what that age is—we may undertake to remove the obstruction which exists—which is mechanical if not always muscular—and put nature on the track of righting herself. I hope, Mr. President, that you will call upon Dr. Stanton on this line as to why the mandible under certain conditions does not grow more. The lower jaw is sometimes much too small for the individual. I think he can enlighten us on that point.

Dr. Phillips. The X-ray is invaluable in the diagnosis of foreign bodies. It is practically indispensable. My experience, based on surgical observation, had led me to be somewhat skeptical as to whether benign growth ever becomes malignant. I know it does sometimes occur. With reference to the question of abnormal conditions of the nose and larynx and its relation upon the upper jaw and the eruption of teeth. It is a fact that abnormal conditions of the nose and nasopharynx interfere with the proper development of the maxillary process of the upper jaw, but it is also a fact that you may have those same conditions present in a very aggravated form and still have the jaws develop normally and the teeth erupt normally with apparently no evil result. There is a personal individual element or equation in every case from which we cannot get away. Every patient is a law unto himself. I operated within the last two weeks upon a child who had a mass of adenoids so placed that they did not seriously interfere with the nasal respiration, but the ears were seriously involved. The child was nine years old, with a perfectly normal upper jaw—practically a normal child, though he had a very large mass of adenoids and large tonsils, both of which I removed. Abnormal conditions in the physical make-up will produce different results in different persons.

Dr. Bogue. I think I never saw a case of normal occlusion of teeth where there was a case of adenoids.

Dr. Phillips. I mean normal so far as an ordinary doctor would notice.

Dr. F. L. Stanton. It is to be regretted, in presenting such an able paper, Dr. Brown should have spoken disparagingly of the work of the orthodontist. Orthodontia, as I understand it, is not only for the treatment of irregular teeth in an attempt to establish normal occlusion, but also in the prevention of all the evils that result from the neglected conditions of which irregular

teeth are but one of many symptoms. It is my hope to receive my cases early, before the teeth are misplaced, and then my knowledge should be sufficient to prevent any deviation from normal. To remove the cause at inception and with a minimum of treatment places the child again in such a position that nature may develop it normally. We are daily striving to look deeper into the causes of mal-occlusion, and in order to more readily comprehend the abnormal, we are constantly attempting to understand the normal. Normality in this region is very difficult to follow. The changes that are occurring are so rapid, and the relative measurements of the face and cranium change their proportions so much that they are very difficult to follow. At birth, the line between the occipital condyles will divide the skull into equal parts. In the adult they will be as five to three. At birth, the contents of the cranium and face are as eight to one; at five years, four to one, and in the adult, two to one. These changes, as will be seen, are due directly to the growth of the superior maxillary bone and the resultant growth of adjacent parts, due to this increase in size. Orthodontia, in connection with rhinology is one of the greatest prophylactic measures in preventive medicine.

Dr. Brown. I appreciate very much the kind expressions used in the discussion of my paper, the purpose of which, aside from friendliness, when boiled down, amounts to this, and is in accord with my own opinion, viz.: that dentistry, especially that portion which looks in the direction of treatment of oral diseases, has gone about as far as it can until some one definitely, methodically and scientifically gathers together and suitably formulates that which we know of diagnosis so that a man may satisfactorily study diagnosis of dental diseases. There is a great deal of scientific work done, and many individual dentists are simply wonderful diagnosticians, but they are doing what they are from their own experience, gathering for themselves what has been written in a general way and converting it into a sort of formula of their own. There is no book that appears to take up this work as it ought to do.

I want to say with regard to the question of malignancy that this discussion reminds me of a discussion on the same subject among medical men recently. Moles were mentioned as quite commonly the seat of malignant growths. One of the emi-

nent physicians present told of his experience and said that he had become convinced moles were a menace, and so decided to have his own removed. On examination, he found forty moles, and decided he would take his chances. There is a great deal of confusion on this subject. I believe the safe position is the one I have given. It may be that malignant growth are of embryonic origin, preordained, one might almost say, according to some authors, but I believe ninety-nine per cent. of the malignant growths that have come under my own eyes, have occurred on the sites of other inflammations. One who might say that they were malignant in the beginning means that for some unexplained reason they went along without giving any trouble for years, and for some equally vague reason they have sprung into life. For clinical reasons, I do not say that they were malignant always, but I believe it right to remove them before malignancy appears. As a safe clinical procedure every one should make it a rule to prevent every irritation of tissue he can, however slight, if it promises to be long continued. What Dr. Bogue has said about school children is very encouraging. I hope when they are examining the teeth of the children they will tell us how many had clean mouths, what kind of jaws they had, what kind of faces, their general development, and give us additional ideas along these lines.

Dr. Bogue spoke of diseases that are within our province. Every disease which we treat directly or indirectly is within our province. I was asked something about the inside of the nose. I form noses and change their external forms, but I never change the inside of the nose; that is the rhinologist's province. Consequently, when we find any such condition as deviated septum, enlarged turbinal bodies, etc., the proper thing is to call in a rhinologist and work with him.

Dr. Stanton perhaps does not know that I am one of the original mal-occlusion cranks, and I feel sure that if the doctor will average the orthodontists he will not find them so well up on matters pertaining to etiologic principles as he himself is. Orthodontia as generally practiced is unfortunately chiefly the straightening of the teeth. Many men who practice orthodontia, who assume to be specialists, have exceedingly limited understanding of developmental principles.

Adjourned.

W. D. MILLER DENTAL CLUB OF BERLIN, GERMANY,
RESOLUTIONS.

Copy of resolutions presented by Hofrat Dr. N. S. Jenkins and unanimously adopted by the "W. D. Miller Dental Club," Berlin, Germany, at a special meeting held August 6th, 1907:

WHEREAS, Geheim Medicinalrat Professor Dr. Willoughby D. Miller, the great scientist and beloved friend for whom our club was named, has been removed by death; therefore,

Resolved, That in common with all the members of our profession we deeply mourn our irreparable loss.

Resolved, That as we were united to him not only by the admiration and respect which his scientific work spontaneously evolved, but also by the ties of warm personal friendship, we hereby pledge ourselves to cherish forever the memory of his example, which shall inspire us to higher devotion to our profession, to broader charity, to nobler living, and to deeper compassion towards suffering humanity, whom he served so well and so unselfishly.

GEO. O. WEBSTER, *President*.

E. D. BARROWS, *Secretary*.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

The regular meeting of the Institute was held at the Hotel St. Margaret, 129 West Forty-seventh street, Tuesday evening, June 4th, 1907. The President, Dr. S. E. Davenport, in the chair.

The minutes of the last meeting were read and approved.

COMMUNICATIONS ON THEORY AND PRACTICE.

Dr. H. W. Gillett. For a fortnight it has been on my mind to say a few words concerning Dr. C. M. Carr's pyorrhea instruments. I am so much impressed with their value that I feel like asking all who have an opportunity to investigate, not to neglect that opportunity. I do not mean to imply that all will coincide with me, for I have very decided opinions about them, although I have had only three weeks to give to their investigation. The set of instruments looks very formidable, there being one hundred and fifty of them, and on first inspection it seems as if it

would take a long time to become familiar with them. I have been very much surprised and pleased to find that in spite of their number it took but a short time to get sufficiently acquainted with them to make their daily use practicable. I have not been inactive in that particular line before, but I have been profoundly astonished at the results readily possible with Dr. Carr's instruments. I hold no brief for Dr. Carr, but I am much interested that the prevalence of pyrrhea should cease to be a reproach to us. None who are interested in the elimination of pyorrhea from practices can afford to neglect what Dr. Carr has to offer. The instruments are many in number, but they are systematically arranged, and very carefully thought out. A couple of hours' study of their features, the means of sharpening them and the principles of handling them is time well spent in any event, even if it does not induce one to go further. I have given Dr. Carr an opportunity to demonstrate his results, and I am convinced that he has made easy what was very difficult or impossible before. I have seen several of his cases, one of a year's standing and others very recently under treatment. His results are uniform and satisfactory. He *cures* bad cases of pyrrhea in ten or fifteen days and does it easily for the patient. I mean by this that he stops entirely the formation of pus and that the gum becomes firm and healthy under his treatment. He does not claim to restore lost tissue. A very essential part of making the best use of this set of instruments is to get all possible instruction from Dr. Carr, and I am inclined to give entire credence to his statement that it is not worth while for any man to buy a set of the instruments without taking the instruction he offers with them. I commend the matter to your careful investigation. The temper of these instruments is most interesting. The points are hard enough to scratch glass, and the longer and more springy ones may be dropped on their points on a tile floor from a height of five or six feet without breaking.

Dr. J. Morgan Howe. Recently I have felt the need of plastic material, for lining deep cavities and capping pulps other than the mixture of eugenol or oil of cloves with oxide of zinc. This has very valuable properties, but is slow in setting. Remembering something recommended by Dr. Flagg years ago, I looked it up in his book on plastics and plastic fillings, and found his direc-

tions for making oxysulphate of zinc. I have had some made, and I will read what Dr. Flagg says about the preparation of this powder and liquid. This was prepared for me at Eimer and Amend's, and cost seventy-five cents for this bottle, containing upwards of a pound. I have used it for capping a pulp or two, and found it perfectly non-irritating; it sets very promptly, so that in ten minutes or so it is hard enough to fill over with amalgam if one should desire. I have found it, so far, a very useful material, and one worth while to have in the office. From the trial I have made of it, it is efficacious in just those cases where we wish to protect the pulp. I have brought with me a number of envelopes, and I should be happy to have all present take samples. The zinc chloride solution to be mixed with it each one can easily prepare.

Dr. C. O. Kimball. I think we owe Dr. Howe our thanks for reading this to us. He takes an old formula and shows how it can be safely used.

Dr. Howe. From my acquaintance with Dr. Flagg I believe he knew a great deal about taking care of teeth that were in bad condition.

Dr. Kimball. I have just succeeded in securing these little leaflets, the catechism we are sending out, and if any gentleman present would like to have them for use, they are now printed and can be procured at a trifling cost.

The President. These catechisms were prepared principally under Dr. Kimball's supervision and that of a committee, the direct outcome of Dr. Kimball's notable paper read before the meeting of the Allied Societies in Boston last January. These catechisms are sanctioned, not only by this Society, but by several Boston societies, and are expected to do good work, particularly in the secondary schools of New England and New York.

We will now pass to the subject of the evening—"Early Oral Manifestations of Disease." Probably the first physicians who attended people in illness knew something of the need for a careful study of the mouth. One of the first commands the physician gives his patient is to show the tongue. Latterly it has been well understood that the mouth not only collects a large number of microbes, but that it shows, perhaps more than any other part of the body, diagnostic signs of disease. It is, no doubt, a truthful

saying that the mouth has not been sufficiently studied. Dentists have been led to believe that physicians usually pay too little attention to the mouth in diagnosing disease. If they gave greater attention to the mouth, mucous membrane and teeth, and all the manifestations there, they would be able to get great help through that study. We are fortunate in having with us to-night a gentleman who has given a great deal of time to the study of this question, Dr. Frederick Newhall Wilson.

Dr. F. N. Wilson. I want first of all to express my regret at being unable to attend the last meeting of your society, to take part in the discussion of Dr. G. V. I. Brown's paper. His subjects were of much interest to me, and I was greatly disappointed to be denied the opportunity of listening to what I am sure was a very interesting and instructive paper. I want also to express my pleasure and appreciation of the privilege of presenting my paper this evening.

(For Dr. Wilson's paper see page 175.)

The President. Before inviting discussion of this paper, the chairman would like to extend a hearty invitation to all gentlemen, not members, to take part in the discussion. Dr. Kimball will open the discussion.

Dr. Kimball. I have listened with great interest to the paper, which is one calculated to do a great deal of good to dentists. I am conscious that in our work we do not pay enough attention to the general conditions surrounding the mouth. I suppose the limitations of time are so great and the strenuous character of the work we are called upon to do, and the limitations of our eyes and thoughts and hands for one particular set of organs are so great in a majority of cases, we do not observe as we should the general conditions of the mouth. Of course, in the preliminary examination of the mouth, we take into consideration the general character of the mucous membrane, and the relation of the parts, but in our routine work I am convinced from my own personal experience that our attention is necessarily confined pretty closely to the teeth and their immediate needs, so that unless our attention is especially called to the general conditions of the mouth we are apt to pass them by unless there is some special reason for it at the time. It seems to me that such a paper as has just been read has great value for us in

calling our attention to a large number of different diseases which are directly manifested in the mouth in their preliminary effects. Realizing my own lack of knowledge on this subject as a dentist rather than a physician, and not seeing the mouths of the patients in their relations to other diseases, my observation of the mouth having as its point always its relation to the work I am called upon to do, I have ventured to ask one of my friends to give us the discussion of this paper in my place. It seems to me that this paper ought to be discussed by a physician rather than by a dentist. I have asked my friend, Dr. Bainbridge, one of the surgeons of the Polyclinic College and Hospital, who is in charge of one of the departments, and is a friend and associate of my friend, Dr. Dawbarn. Dr. Bainbridge is also connected with the Skin and Cancer Hospital, where we have observed these lesions of syphilis and cancer of the mouth.

Dr. William Seaman Bainbridge. I have listened to the reading of Dr. Wilson's paper with a great deal of pleasure, and I wish to congratulate him upon his excellent handling of a subject upon which so little has been written. It is also a pleasure to me to have the privilege of meeting with the cream of the dental profession of New York. I am convinced that mutual benefit would accrue from the more frequent scientific intercourse of the dental and medical professions. I regret that my friend and colleague, Dr. Dawbarn, could not be present to enter into the discussion, as his wide experience in oral surgery and his extensive reading along these lines would unquestionably have enabled him to add materially to the interest and value of the program.

It is of the greatest practical importance that the early oral manifestations of disease be noted by the dentist as well as by the physician, and, when occasion demands, that the case be referred by the physician to the dentist, or *vice versa*. Early recognition of various conditions in the mouth, and prompt and adequate treatment thereof, will save much discomfort and many times serious illness on the part of the patient. It therefore behooves dentist and physician to work together for their mutual good, as well as for the good of the patient. Not only is the patient thus safeguarded, but the physician and dentist also, particularly the latter. In certain instances, too, the public at large is protected

from infection by the early recognition of pathological conditions in the mouth and oropharynx. I recall a case in point. When I was attending the College of Physicians and Surgeons I took my meals at a restaurant near the college. The waiter who had been in the habit of serving me volunteered the information one day that he had a sore throat. He was coughing a little at the time. He also said he had some trouble with his teeth. I advised him to go to the dispensary of the college and also to the dentist. It so happened that the next day, while I was on duty in the throat clinic, this man came in. Upon examination I found active secondary syphilis in the throat, a stage when it is virulently infectious. It can readily be imagined the danger to the dentist had this man been operated upon by him, and also the danger to those using the same drinking cups, etc. The day before I examined this waiter I saw him drink from a glass, fill it, and then bring it to me for use. I did not use the glass, hence the possibility of infection on this occasion was obviated.

Saliva, instead of having the healing properties formerly attributed to it, is known to be a prolific purveyor of infection. Syphilis and tuberculosis are more frequently contracted from restaurants, soda fountains and public drinking cups than is generally known, the saliva from the infected individual being the source of inoculation. The Hebrew rite of circumcision is said to be responsible for primary syphilitic lesions on the penis in many well authenticated cases in young children, the one performing the rite having the disease. Senn speaks of tuberculosis as being transmitted in the same manner, reporting cases. It is well known that among the Russians of certain localities syphilis is transmitted through the custom of extracting foreign bodies from the eye by means of the tip of the tongue. A Russian author mentions a woman who made her living by this practice, and who infected about 50 per cent. of the inhabitants of the town in which she lived.

The contagiousness of syphilis and tuberculosis is pretty well established, and now the question is being asked whether cancer is contagious. If it is, no one needs to take more precautions than the dentist, who cannot, as does the surgeon, protect himself in a measure by the use of rubber gloves while operating. A great deal has been written on the subject, and in certain quarters

strenuous efforts have been made to establish the theory of the contagiousness of cancer, but a careful study of the literature and personal contact with many of the leading experimental workers along this line both in America and abroad, have convinced me that the evidence thus far adduced gives little cause for alarm on this score. Syphilis is a far more dangerous disease than cancer when viewed from the standpoint of possible contagion or infection. In this connection I would particularly emphasize the value of early recognition by the dentist of morbid processes in the oral cavity. The dentist is not infrequently consulted with regard to the teeth when some beginning of a malignant disease is entirely overlooked by the patient. Recognition of such condition and the reference of the patient to the proper source of treatment would be of inestimable value. Much valuable time is lost, even then, by the confusion of cancer with syphilis. I have had under my care a number of cases of cancer of the tongue in which the patient has undergone months of antisiphilitic treatment, until the morbid process had advanced beyond the stage of cure, even by radical operation. The old French idea that cancer of the tongue is always nothing more than cancer on a syphilitic basis is not borne out by the fact. At the Skin and Cancer Hospital we have every year many cases in which cancer of the tongue or mouth has been diagnosed and treated as syphilis, the patient having to endure not only the moral stigma so generally attached to syphilis, but the suffering and perhaps loss of life, which could have been spared had a more careful diagnosis been made.

I do not wish to minimize the difficulty of making a diagnosis which, as the following case will show, is not always an easy matter. I have recently operated upon a patient, removing the entire tongue and all glands in the neck, who had consulted eighteen physicians, all of whom, with the exception of the last, had diagnosed the condition syphilis. The patient is well to-day. Another case in point was that of a man who was referred to me on account of a small growth, no larger than a French pea, on the tip of his tongue. Inasmuch as it was so small I removed the entire growth with a V-shaped section of the tongue, which I sent to a well-known pathologist for microscopic study. Section after section was examined with negative findings. Thirty-five sections in all were made, and finally, at the very tip of the

V-shaped piece, he found actively malignant cells. The patient considered this growth of little consequence, and, but for the keen discernment of the physician who referred him to me, he might have gone on to a stage where a serious and disfiguring operation would have been necessary. He is well to-day, with no impairment of speech and the loss of only a small part of the tongue.

Dr. Wilson emphasized, justly, the importance of the removal of diseased adenoid tissue from the vault of the pharynx. When this is not done, the patient, as we all know, generally breathes through the mouth, cold air is inspired, the parts below are irritated, a catarrhal condition supervenes, the facial expression is changed, and a whole train of troublesome symptoms arise, which might easily have been prevented by early operation. Tuberculosis is often disseminated from a primary focus in the adenoid structures in the pharynx.

It is not uncommon to find enlargement of the cervical lymph glands due to direct infection from the mouth by pyogenic organisms, as in the case of alveolar abscess. Such a case was treated by a member of this society, who recognized as the cause of the enlarged glands a very small recurrent abscess at the root of a tooth. He cured the abscess and the enlarged glands disappeared.

I would say a hearty amen to the statement that all benign tumors should be removed early. There may be a few exceptions to this rule, but these are so rare that we may say without reservations that all accessible benign tumors should be removed, if just treatment is to be accorded the patient. Under the term benign tumors I notice that Dr. Wilson includes naevi. While they are generally benign, it may be said of them, as of many other benign growths, that they may become malignant, even to the point of destruction of life. A tumor may be structurally benign and clinically malignant, the baneful effects of innocent tumors, as Bland-Sutton has said, depending entirely upon their environment.

The relation of the mouth to the digestive functions is of the utmost importance. Pus around the base of a tooth may be the cause of putrefaction in the intestine, and the condition may continue indefinitely so long as the focus in the mouth is not removed.

I wish again to express my appreciation of the privilege of meeting with this society, and my pleasure at listening to Dr. Wilson's excellent paper.

The President. We shall not have Dr. Brainbridge as a substitute for Dr. Kimball henceforth, but as a principal.

We have with us to-night the chairman of the Section of Laryngology, New York Academy of Medicine, Dr. Thomas J. Harris, and invite him to speak.

Dr. Thomas J. Harris. I want to thank Dr. Kimball for this opportunity of saying just a word to my friends, and also for Dr. Wilson's paper. I have been benefited and instructed by hearing this subject presented in such a clear and excellent manner. I do not think it can be regarded as too timely a topic, and it seems to me there is a serious dearth of material upon this subject, certainly within the last few years. More than anything else I am impressed with this fact; namely, the need of a closer affiliation and co-operation between the oral surgeon and the physician or surgeon working in the same field; and when we do co-operate more and recognize in each other the need of mutual help the patient will be vastly benefited. Dr. Kimball confessed, and I, too, speaking as a rhinologist in my narrow field, find that we make mistakes and errors, and just now comes this paper calling our attention to this subject. There are, Mr. President, two or three points suggested by this that I want to speak of—when the patient comes to the office with a coated tongue and gums, and no evidence is found of any serious trouble in the teeth that can account for it, it is probably a condition secondary to disease of the gastro intestines canal and very desirable that he consult his physician, and have that condition attended to. The second point is one of personal observation. As a rhinologist, I have my attention directed with surprising frequency to malformations of the dental arch. Where I recognize to-day a dozen cases, ten years ago I saw none or only one. The child who comes into the hospital with nasal obstruction and all the evidence of adenoids will almost invariably present a picture of high arch. Where we see a dental arch very narrow and clearly out of true line, with the teeth displaced, it is the dentist's evident duty to inquire whether there is nasal obstruction. Seek the advice of a good physician, for this is not merely a privilege, but a duty. A final

word: We are all built on two lines, some are radical, some conservative. The latter is my case, and I dare say I fall into the mistake and err on the side of waiting too long. From the experience of sixteen or seventeen years of special work, I find that there is not one case, but a good many, of apparent malignancy of the tongue which, after all, clear up and turn out to be syphilis. I do not think we should wait too long, but it is fair for us to ask ourselves, can this be syphilis? I think there is a liability for dentists, to fall into the error of thinking that conditions of the tongue are primarily due to the teeth or mouth, when they are not, and mistakes may therefore be made in that direction.

Not more than three months ago there was sent to me, from New Jersey, a woman about forty years old, who had been suffering from an ulcer of the tongue for a period of several months. She had had all the treatment a local physician could suggest. He sent her to a dentist, who regarded it as a case of dental neuralgia, and extracted her teeth until she had not a tooth left in her mouth. I made a diagnosis of syphilis, put the woman on syphilitic treatment, and inside of three weeks her pain ceased. There was a very large defect in the tongue, which has now entirely filled. I have in mind the possibility of a malignant condition, and if she had not improved as she did I should have turned her over to the general surgeon.

Dr. Arthur H. Merritt. Reference has been made to the frequency with which the dentist in his practice overlooks the presence of adenoids. While this may be true in some instances, it cannot be said to prevail. It was the dentist who first recognized the adenoid to be an etiological factor in the production of one of the most deforming classes of malocclusion of the teeth that we have to deal with, and it is safe to say that no one to-day would attempt the correction of these cases without first seeing to it that any obstruction in the naso-pharynx was removed.

The statement has been recently made that in many instances patients suffering from nasal stenosis are dismissed by the rhinologist, without any reference having been made to the existing mal-occlusion of the teeth. I have now under treatment two cases which were thus dismissed without any reference whatever being

made to the need of orthodontic treatment, though both presented typical cases of mal-occlusion. I have since been told by the rhinologist who operated upon these cases that he had never known of the necessity of referring such cases to the dentist for examination. The inter-dependance of dentist and rhinologist in cases such as these is such that they can never be carried to a successful issue without their co-operation. However successful the dentist may be in placing the teeth of such cases in normal occlusion, he can never hope to retain them until after he has availed himself of the services of the rhinologist. Likewise the rhinologist will fail in some instances in bringing about normal nasal breathing without the co-operation of the dentist.

In a recent number of the JOURNAL there was recorded some of the evil efforts of mouth infection. Dr. F. A. Donaghue, of Boston, in reporting his clinical experience in upwards of 300 cases of cervical adenitis, ascribes many of them to a lack of oral hygiene. There can be no doubt that in the neglected oral cavity there is presented a prolific source of disease, and one which has not received the attention which its importance demands.

Within a week I was called to see a patient who for several months had been confined to his room by a digestive disorder. I was called in by the attending physician to replace some fillings which had come out during the illness of the patient. The filthy condition which this patient's mouth presented is well nigh indescribable. His physician, a specialist in diseases of the digestive apparatus, had during the several months he had had him under treatment paid no attention whatever to the hygiene of his patient's mouth, though there can be little doubt that he was poisoning himself with every injection of food, and perpetuating the trouble from which he was suffering. It was not more fillings the patient needed half as much as it was more attention to oral hygiene.

In view of the fact that pulmonary tuberculosis, lobar pneumonia and other disorders of a grave nature are frequently contracted via the intestinal route, too much emphasis cannot be placed upon the importance of oral hygiene.

Dr. Kimball. I should like to say a word in connection with Dr. Merritt's remarks. There came to my office a prominent professional man, suffering from complete nervous prostration,

and under the care of two eminent physicians, both of whom were puzzled, and assured me that they could find no evidence of pus in the man's stomach. I went through his mouth carefully, and found several teeth were in a very bad condition, and yet, in spite of treatment, the trouble continued. Then I found on closer examination an old dead tooth with the sinus from its apex out through the roof of the mouth, a little pus oozing and a small area of necrosis. I gave the patient an anesthetic and took out some teeth and bone, thoroughly scraped and cleared up every section, and at once those symptoms began to abate. It was a curious thing that a man so prominent in professional life should have needed this peculiar form of treatment.

Dr. Howe. I want to express my gratification and thanks to the essayist, Dr. Bainbridge, and Dr. Harris for their very interesting and valuable discussion of this able paper, and to state that I think the subject as presented to-night will be of great value to all of us.

The President. The secretary will read Dr. Dawbarn's written contribution to the discussion.

Dr. R. H. M. Dawbarn. Dr. Wilson's paper is intended to call attention, among diseases of the mouth, to the earliest possible diagnosis of malignant changes in the bones which form in great measure its roof and lateral walls. Surely nothing can be more practical than this; nor can a dentist ever deserve deeper gratitude than when in the earliest stage of malignant disease the stage most rarely recognized, unfortunately, he is able by the simplest of tests and requiring but a moment to carry out, to demonstrate the need of instant care by a surgeon. Here, as everywhere in the body, and in bony malignant disease equally with that of the soft parts, delay in diagnosis (which means delay in surgical radical intervention) is what chiefly gives to cancer, sarcoma and to local tuberculosis their dread name.

These three diseases when affecting bone primarily are those alluded to as malignant in this paper. Admittedly, the last of these three is usually least so; and yet when developed in a subject who through family inheritance plus a personally acquired state of diminished vital power, presents to tubercular invasion a field in which the bacilli can multiply almost without let or hindrance. In such a patient bony tuberculosis may deserve to be

called malignant quite as much as, perhaps more than, some of the clinically mild forms of carcinoma or sarcoma.

For ten or more years past the writer has been convinced that in the three instances in question the very first pathological change that may regularly be depended upon to occur is a process of decalcification, a process whereby the lime salts (chiefly calcium phosphate and carbonate with a little fluoride) are removed from the bony structure, leaving the bone thus altered exactly the same in appearance, for the time being, and often causing, meanwhile, hardly any symptoms other than a varying degree of local discomfort or aching; and, upon pressure, tenderness of varying degrees may be elicited. That is all, and such signs as these are useless in reaching any definite conclusion as to causation.

Fortunately, however, it is very simple to make the test which is so highly diagnostic. Taking an ordinary sewing needle, such as is used in dressmaking, held firmly by a needle holder, or by any kind of a tool capable of grasping it securely, we test the density of the suspected bone. It should be impossible to introduce the needle point into the bony palate or into the front wall of the antrum, if normal. But when decalcification has set in, the needle can be made to enter about as though the substance were cartilage.

It must be remembered by the reader that I particularly recall the fact that there are several constitutional diseases, all fortunately quite rare, in which softened bone is simply one of the evidences of these states. For example, Osteomalacia (*Mollities Ossium*). But in such instances not a single bone alone, but the bones in general will become soft.

When a single bone or part of one bone develops this sign my experience causes me to believe that almost always the cause is malignancy, and if treated promptly many a life can be saved by the surgeon at this time; a life generally thrown away, however, up to the present time, by delay, through the dentist or family doctor waiting for a tumor to become evident before calling in a surgical specialist.

Dr. Wilson. In closing the discussion I have but little to say. There is one point, however, in reference to the cases of Cervical Adenitis spoken of by Dr. Harris about which I might say a word. No doubt many of these cases are tubercular, but from my personal experience with them in the past few years, I

am sure a large number are due to infections through the mouth and naso-pharynx in which the bacillus of tuberculosis plays no, or a very small, part. I feel sure both physicians and surgeons have given too little attention to the source of the infection in these cases of glands of the neck, and in previous years I have no doubt operated upon cases which could have been cured by the treatment I have since adopted, namely, to have the mouth and naso-pharynx put in a healthy condition and kept so, instituting, meanwhile, hygienic and nutritive treatment in every possible way. Many cases so treated recover without operation upon the glands, and I consider it much better practice to give them the benefit of this treatment first, reserving operative interference for those cases in which it fails. I fully agree with Dr. Bainbridge that in cases of malignant growths, radical operation should be performed without delay. One difficulty I have experienced in hospital cases of this sort has been my inability to impress upon the patient the advisability of immediate operation. Some of them appear to be seeking a doctor who will either tell them the growth is benign or that there is some doubt in his mind as to its exact nature, and it would be better to wait for more positive evidence. Personally, I would rather assume the operative responsibility than that of delay.

A mouth wash I have used with much satisfaction in cases in which I am to operate within the oral cavity has the following formula:

Alcohol, 95%,	30 parts.
Glycerine,	10 parts.
Aqua,	60 parts.

This the patient uses several times a day as a mouth wash and dentifrice.

Dr. Bainbridge also spoke of Noma. This disease might very well have been included in my paper, for it is both local and constitutional, occurring as a gangrenous area on the lip or cheek of individuals, mostly children who are very badly nourished.

The President. This body is under great obligation to the essayist, Dr. Wilson, and we give him our thanks for serving us so well. We also wish to thank Dr. Bainbridge and Dr. Harris for being with us this evening. They are welcome at any time, though we warn them that we shall use them, as they are too valuable to be allowed to sit quietly.

Adjourned.

THE JOURNAL

OF

THE NEW YORK INSTITUTE OF STOMATOLOGY
AMERICAN ACADEMY OF DENTAL SCIENCE
HARVARD ODONOLOGICAL SOCIETY
METROPOLITAN DISTRICT
(MASSACHUSETTS STATE SOCIETY)
AND THE
BOSTON AND TUFTS DENTAL ALUMNI ASSOCIATION

Vol. II

DECEMBER, 1907.

No. 4

WHAT WE MIGHT DO.

A careful perusal of the first half dozen numbers of The Journal forces the conclusion that in outlining the policy of this paper little improvement can be suggested upon the articles of Drs. Potter, Truman, Howe, Allan, Kimball, Gillett, Wheeler, Merritt and others.

The high stand therein taken for professional freedom, ethics and unfettered journalism bodes well for the future of our Journal. We are all glad that such a successful start has been made, for "well begun is half done."

One regret, however, is that the Journal is as yet the representative of the best Dental Societies of only two cities, New York and Boston. Where are all the other high-minded men of the profession? Why do not the representative societies of Philadelphia, Chicago, St. Louis, San Francisco and the other large cities of the country take up the Journal as their own? They were all extended a hearty welcome to join in our work, the opening article in the first number being such an invitation.

It would seem that now is a good time for the Societies that are already interested in publishing the Journal to work out some of the following propositions. Let each society elect a committee to do work along one special line; or let each society elect or appoint a member to be one of a committee from the societies as a whole, and take up the following work:

(a) Extend the influence of the Journal to the societies of other cities not now represented on the Journal, through individuals who are in hearty sympathy with our work.

(b) Have a Committee on Chemistry and Pharmacology, as does the American Medical Association, who will report on new drugs and so forth, and who will keep us informed on the nostrums so constantly placed before us.

(c) An Advertising Committee might be advisable, not for the purpose of procuring advertising in general, which we could probably best secure through a regular agent, but who might prepare a reliable list of those houses in the larger cities where dental supplies could be obtained at less cost than at Dental Depots. (I understand, on reliable authority, that Dental Supply Houses connected with the trust have refused to place advertisements with us.) As, for instance, jeweler's saws, polishing materials, materials for making porcelain bodies and enamels, elective apparatus suitable for dental use, rubber dams and other rubber articles, like gloves, mats, tubing, vulcanite rubber, etc., gold beaters, professional stationery, etc., etc. All of these things and many others can be obtained better and cheaper than at dental depots. As an instance, the fine powdered pumice that we use for polishing teeth, plates and bridges, the depots sell for ten cents per pound. Pumice can be purchased at a wholesale paint house for one and a half cents per pound in barrel lots, or three cents in smaller quantities, a saving of seventy per cent., and it is finer pumice at that. Cutting and bending pliers, suitable for our use can be obtained at hardware stores or jeweler's supply houses, also buffing wheels and brushes. Medical instrument

houses will supply us with many necessities at much less than dental depots. Small cutting scissors for sixty-five cents at the former, as compared with one dollar and a quarter at the latter. These houses would probably be very glad to do business with us and have their trade address in our Journal, at a low price per number. Most dentists know some little store where they purchase some kind of an office supply, and each dentist might help in furnishing a list of addresses as above outlined.

(d) Get at the young men and those who can be made the flower of the profession.

(e) A committee on professional literature who would call our attention to works we should know, and review them for us; as, for instance, the following, published by the American Medical Association of Chicago, contains much food for reflection for the dentist:

"The Great American Fraud, Containing The Nostrum Evil and Quacks and Quackery."

"Propaganda for Reform in Proprietary Medicines. New and Unofficial Remedies."

"Infection, Immunity and Serum Therapy."

"Works on Bacteriology and Physiology."

And many others in which we should be and are interested.

(f) As in many States the Board of Registration is not a prosecuting board, committees might be provided that would do something toward suppressing the evil advertising of quacks who do so much harm to the Dental Profession and the public. There is now running, in one of the leading Boston Sunday papers, a column advertisement of a quack concern whose claims are manifestly absurd and untruthful. Such concerns ought to be suppressed. The American Medical Association has done a good work in suppressing medical quacks, and we might do the same in our line. What is everybody's business is nobody's. Let us make some of the above our business.

ROBERT TUCKER MOFFATT.

A DISCUSSION OF THE COMMON TUMORS AND CYSTS OF THE MAXILLAE.*

EUGENE H. POOL, M. D., NEW YORK.

After having accepted the honored invitation of your President to address you, the question of a suitable subject proved perplexing. The consideration of alveolar abscess was alluring, but fortunately, while deliberating, I was informed of a case of an abscess in a somewhat unusual situation, in which a dentist, as consultant, made the correct diagnosis, whereas the surgeon had inclined to the diagnosis of gumma. I was told that the dentist remarked that he saw many such cases, so I was led to feel that in this domain my path would be a rough one and might lead me to unforeseen pitfalls by reason of your superior knowledge of the subject.

A very timely article by Dr. David D. Scannell, which appeared recently in the *Journal of the New York Institute of Stomatology*, dealing with "cancer in and about the mouth," in which the author emphasized the vital importance of early diagnosis and immediate operative treatment, led me to adopt a kindred subject, namely, the discussion of some of the common new growths of the jaws; conditions for which, undoubtedly, the advice of the dentist is frequently sought ere the surgeon is consulted; a subject, then, which offers to the dentist and the surgeon alike a common ground of interest.

Let me, accordingly, briefly recall to your attention some points in those neoplasms, which are subjects either of real practical importance on account of their dangers to the patient or of academic interest, especially to the dentist, by reason of their relationship to the development of the teeth.

Since the feature presenting the greatest practical importance, at least to the patient, in all these neoplasms, is the ultimate outcome as regards life and health, the discussion will naturally rest largely upon the question of the malignant or benign character of the various types of tumors, with a view to recognizing the malignant forms at an early period when alone treatment can be effective in saving life.

* Read before The New York Institute of Stomatology, October 1st, 1907.

As a preliminary, certain elementary distinctions must be emphasized to avoid later misunderstanding.

By malignancy we understand rapidity of growth, invasion of adjacent tissues, tendency to ulceration and to local recurrence after removal, interference with the general nutrition of the body which leads to profound emaciation or cachexia, and the formation of metastases, that is secondary growths at a greater or lesser distance from the parent tumor. This includes, of course, involvement of the neighboring lymph nodes.

Benign tumors, including primary cysts, do not present these characteristics. They grow locally and affect the well-being of the body, if at all, only in so far as their presence interferes mechanically with vital functions.

The malignant tumors are in general sarcomata and carcinomata, which includes epitheliomata; sarcoma being a tumor of connective tissue type of lawless growth; carcinoma being a tumor derived from and composed of epithelial cells which likewise present an unrestrained or lawless distribution and growth. When arising from the skin or a flat celled mucous membrane they are called epitheliomata in distinction to those arising from glandular epithelium and following a more or less glandular type.

Turning now to the consideration of the various neoplasms we shall follow the description and classification of Heidenreich who divides them into those dental and those of non-dental origin.

Tumors of Dental Origin.—Of the tumors of dental origin we shall pass over the solid growths which take their origin from a completely developed tooth, and shall confine ourselves to the others of this class, which are the odontomata and cysts of the jaw.

The odontomata are solid tumors dependent upon anomalies of development of the teeth, and formed by hypertrophy of the dental tissues. They occur in youth and are usually situated in the inferior maxilla in connection with the permanent molars. They originate only during the evolution of the tooth and present four varieties dependent upon the period of development. First, the dental papilla may give rise to a soft fibrous or even myomatous tumor which lies in the follicular sac, sharply defined from the surrounding bone. A slightly later stage in the

development of a tooth gives rise to the odontoplastic odontoma which is the most important variety. This may be fibrous with grains of dentine, or may consist of irregular masses of dentine (Fig. I), sometimes with ivory. It grows in a cavity of the bone, the walls of which become very gradually thinned out as the tumor enlarges. At the period when the crown is developed, but before the root has formed, the third or coronary type occurs, (Fig. II). This is usually a circumscribed protuberance from the tooth and does not of necessity prevent development of the root and eruption of the tooth. Lastly, there is the radicular or root type, which may become large and prevent the eruption of the tooth. (Fig. III.)



FIG. 1.
Fig. 1. Odontoplastic Odontoma. (Broca.)



FIG. 2.
Fig. 2. Coronary Odontoma. (Heydenreich.)



FIG. 3.
Fig. 3. Radicular Odontoma. (Tomes.)

The other class of growths of dental origin, the primary cysts of the jaw, are certainly the most interesting of all the conditions under consideration. They have been variously classified, but are best subdivided into four groups, designated by the terms dentigerous or dentiferous, unilocular, multilocular, and adamantine. All of these have in common one important and essential feature, that is, they are in structure of epithelial derivation and type. Yet in spite of this one similarity they must be regarded clinically as different processes; the dentigerous cysts present marked individual peculiarities; the unilocular are distinctly unique; and only the multilocular and adamantine can be considered together as closely related. Before discussing each

type separately we shall consider the really fascinating question of the origin of these cysts as a whole.

The subject has been the source of much discussion and various hypotheses have been elaborated; but the one which best explains all the phenomena and to which the fewest valid objections can be offered is that of Malassez. This investigator, in the study of the development of the teeth, found in connection with the infolding of the squamous epithelium of the mouth, which leads to the formation of the enamel or adamantine

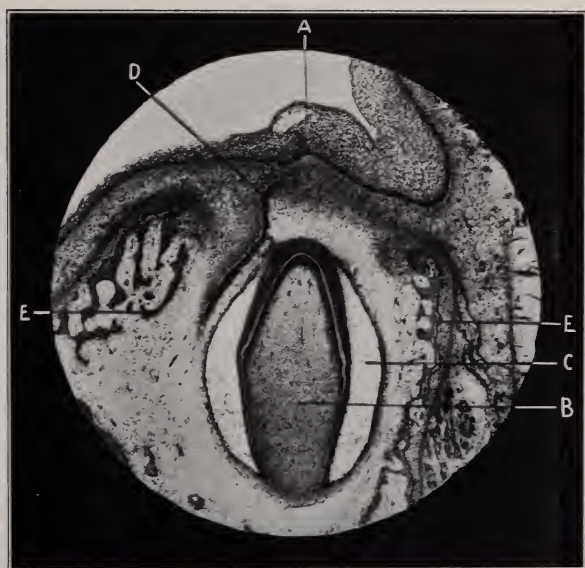


FIG. 4.

- A. Mucous membrane of gum.
- B. Developing tooth.
- C. Tooth follicle filled with adamantine or enamel cells.
- D. Strand of squamous epithelial cells derived from the infolding of the mucous membrane of the gum.
- E. Bone developing from each side over tooth; showing how rests of epithelial cells may ultimately lie within the bone.

organ, outbuddings of the cells at various levels from the gum to the enamel organ itself. (Fig. IV and V).

Most of these buddings, together with the epithelial strand from which they are derived, ultimately atrophy and disappear. Yet some of them, and likewise parts of the main strand, and of the epithelium connected with the formation of the tooth root persist as small inclusions or nests of epithelial cells, which Malassez designated "*débris épithéliaux paradentaires*." (Fig.

VI.) According to this observer, these inclusions have the inherent potentiality of proliferating and of developing under suitable conditions or stimuli into cysts or solid masses of squamous or adamantine cells, or neoplasms composed of both forms of cells. This hypothesis attributes to these inclusions the source of all cysts of the jaw, so according to it the pathological importance of the débris is extreme. The hypothesis explains several perplexing features of the cysts, namely, the epithelial lining of the unilocular or root cysts which occur in or near the peridental

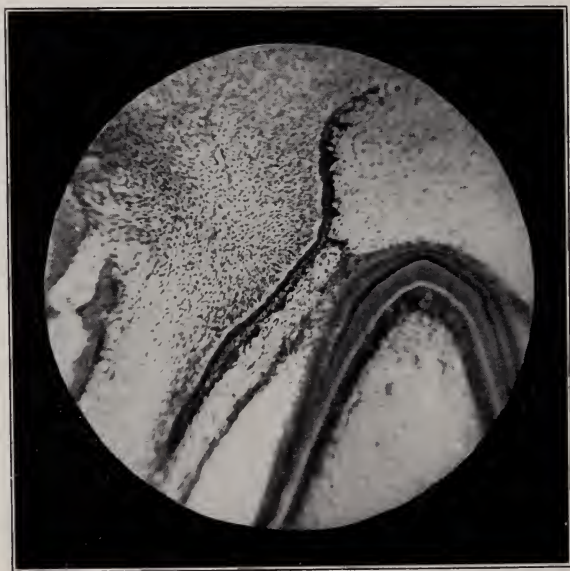


FIG. 5.

Enlarged photographed of Fig. 4, D, showing small buddings of cells from the main strand.

membrane, a situation where no epithelium normally lies; the frequent occurrence of two or more supernumerary teeth in connection with the dentigerous cysts; and the occasional development of a multilocular cyst as the form of recurrence after the removal of other varieties of cysts.

As has been said, the structural and clinical characteristics of the cysts present marked differences.

The dentigerous cyst, (Fig. VII), which is sometimes called a follicular dental cyst by reason of the theory that it arises through dilatation of a follicle of a rudimentary or supernumer-

ary tooth, is usually single and of moderate size, rarely becoming larger than a small orange. It is as a rule situated near the molars between the two tables of the bone, and according to Heydenreich occurs rather more frequently in the inferior than in the superior maxilla, but it occasionally lies elsewhere even in such positions as the orbital process, hard palate, etc., presumably in connection with a supernumerary tooth. The sac wall, which incloses the fluid contents of the cyst and is easily separated from the bone, is composed of fibrous tissue lined by

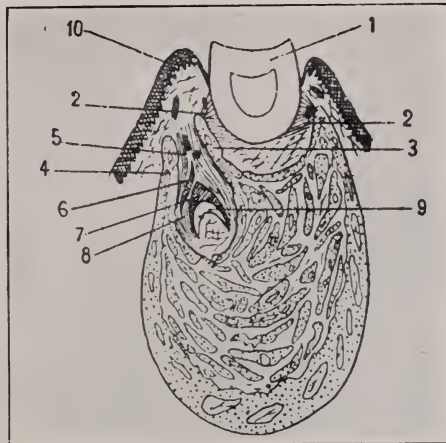


FIG. 6.

Vertical Section of Inferior Maxilla; age two and one-half years. (After Albarran.)

- | | |
|---|---|
| 1. Milk tooth. | 5. Gubernaculum dentis filling this canal and composed of fibrous tissue and epithelial debris. |
| 2. Peridental membrane. | 6. Fébris representing a third dentition. |
| 3. Septum of bone which separates the alveoli of the primary and permanent teeth. | 7. Adamantine organ. |
| 4. Posterior part of maxilla, limiting the alveo-dental canal. | 8. Wall of follicle of permanent tooth. |
| | 9. Permanent tooth in process of development. |
| | 10. Epithelium of gum. |

squamous epithelium, with at times some star-shaped adamantine cells. In the wall, projecting into the cavity, there is usually either a full grown tooth, the crown of a tooth, or flat tooth rudiments, but occasionally even these are absent. Since they depend upon early developmental conditions, these cysts naturally occur in youth, especially from 7 to 20 years of age. Their course is similar to that of the other cysts which we are about to describe. The growth is painless and extremely slow, lasting even as long as ten or twenty years. Its situation between the tables gives the cyst a bony shell; and the outer table being the

weaker, it is the one which is the more affected and it gradually becomes bulged outward. While the bone is thick one feels only a hard ovoid swelling which does not admit of a recognition of its cystic nature. Later, however, the bony shell becomes so thin that a parchment-like or egg shell crepitus may be elicited. If left to itself the cyst ultimately ruptures through the mucous membrane and leaves a fistulous tract.

The unilocular cysts occur at any time of life, but chiefly in adults. They are usually situated in the superior maxilla in connection with the canine or incisor teeth. Their origin is in the peridental membrane, usually near the summit of a tooth root; but occasionally they grow at a short distance from the tooth root. They are usually small. The wall is fibrous, with a lining of squamous epithelium; the contents fluid. As a rule,

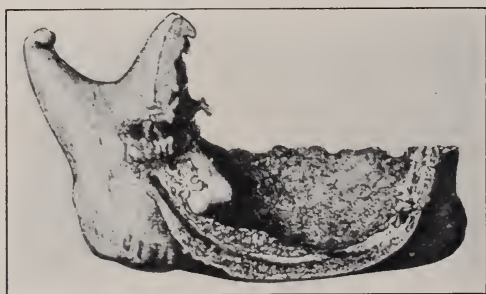


FIG. 7.

Dentigerous Cyst. (*Lisfranc.*)

an inflammatory process which involves the peridental membrane antedates the cyst. This etiological relationship seems to depend upon stimulation of the above described debris by the proximity of the inflammatory process. When an apical pericementitis following death of the pulp is the causative lesion, as is most often the case, a granuloma frequently develops at the summit of the root. This granuloma may present a cavity filled with purulent material but it must not be confused with the cyst under discussion. In or near the wall of the granuloma lie parts of the debris and these may proliferate and undergo cystic formation under the stimulus of the adjacent inflammatory process.

These cysts occasionally give rise to some pain, more or less active either in one-half of the face or in the affected alveolus.

This can readily suggest abscess; the true condition is sometimes first recognized upon the extraction of the affected tooth to which the cyst is often adherent.

The multilocular cyst (Fig. VIII) is a neoplasm composed macroscopically of a conglomerate of round cysts from the size of a pea to that of a hen's egg in which the cystic element predominates over the stroma. The inferior maxilla is affected much more often than the superior. The cyst frequently attains a large size and may invade the ramus and at times the whole bone. The tumor is nodular and irregular, and according to the condition of the overlying bone, it is hard, crepitant, or fluctuating. Microscopically, the stroma is seen to contain numerous epithelial productions, as strands, tubes, irregular masses, or



FIG. 8.

Multilocular. (Becker.)

cysts lined by squamous or adamantine cells. (Fig. IX). From an etiological standpoint, it is interesting to note that cysts which are primarily multilocular are often preceded by inflammation of the pulp of a tooth near the site of origin; and that some multilocular cysts occur secondarily as the form of recurrence of the other varieties of cysts.

This last feature is of practical importance, for such a change in the character of a cyst sometimes results seriously. Although a multilocular cyst is usually benign, it sometimes, after a long period of benignity, assumes the character of a malignant tumor. The solid part then develops to a more marked degree than the cystic and the cyst really becomes a cellular malignant neoplasm. This is especially noted in cases

where the multilocular cyst has recurred. Repeated recurrences have been noted and even general dissemination of the tumor by metastasis has been reported by Heath.

The adamantine cyst involves almost exclusively the inferior maxilla especially near the angle. On cut section the tissue is usually firm and fibrous, rarely gelatinous. It usually presents cystic cavities. All varieties exist between these solid tumors and the closely allied multilocular cysts, and a sharp boundary between them is impossible, a fact which explains the diverse statements as to their relative frequency. Histologically, there is a fibrous stroma rich in cells which often constitutes the chief bulk of the tumor. Through this connective tissue stroma are distributed masses of epithelial cells assuming the type of those

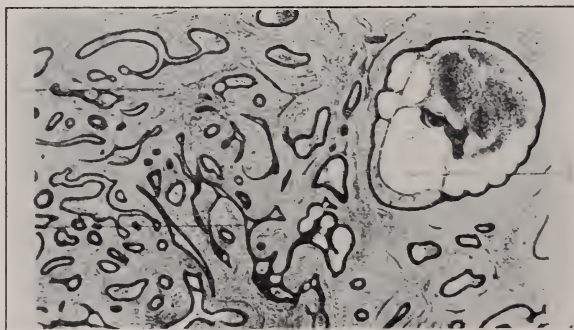


FIG. 9.

Microscopic Section of Multilocular Cyst. (*Malassez*.)

of the enamel organ. These masses may show considerable differences, but in the usual form they are composed at the periphery of cylindrical or somewhat flattened cells and in the center of indifferent or star-shaped cells. (Fig. X). Occasionally a form occurs in which cylindrical cells rest on enamel formations or formations similar to dentine.

Although all these cysts and tumors are properly classified as benign, it is well to recognize the fact that any of them, if incompletely removed, may recur as multilocular cysts or even as typical malignant epitheliomata. The question of treatment then, offers an interesting phase of the subject.

From what has been said, complete removal might seem at first glance to be mandatory, but this impression must be some-

what modified. In the case of dentigerous and large unilocular cysts the best results seem to have been obtained by removing with scissors or chisel the entire outer wall of the cyst, so that a cavity is left with sloping walls. After removing the contents the cyst is packed with gauze, and usually in about a week the epithelium of the lining wall unites with that of the gum, and the remainder of the healing may be left to nature. But at times these cysts are dealt with by the partial or complete removal of the outer wall supplemented by cauterization or curettage of the lining. This method, however, is not to be recommended since it frequently causes an interminable process of granulation and at times is followed by a multilocular cyst.

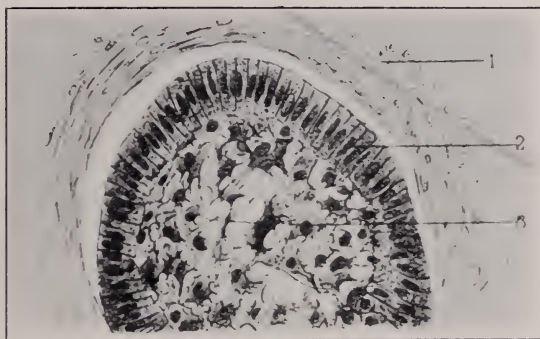


FIG. 10.

Microscopic Section of Adamantine Cyst. (After Malassez)

The unilocular cysts are as a rule, readily removed intact, often in the extraction of the affected tooth, to which the cyst is frequently quite firmly attached, but if large they must be dealt with in the same manner as the dentigerous.

The multilocular and adamantine cysts must be completely removed. On account of their usually benign character, careful and thorough removal of all the morbid tissue which can be seen will suffice. If the cyst be small and sharply defined, simple enucleation is sufficient; if large and not sharply demarcated, particularly if the growth is somewhat rapid and if microscopic examination shows the tissue to be very cellular, free resection of the bone will be necessary. We wish to emphasize that in all cases thorough removal must be practiced in these cysts; incision and attempts to destroy the interior do not protect against recurrences.

Tumors of Non-Dental Origin.—Turning now to the tumors of non-dental origin, there are numerous varieties which on account of their rarity and benign character do not demand individual discussion. Moreover, carcinoma, though a malignant tumor, and frequent in the gum as an extension of an epithelioma from the tongue and other parts, rarely occurs primarily in the mucous membrane and the gums and only exceptionally within the bone. The only feature to which we need call attention is its occasional occurrence on the gum as the result of irritation by a tooth plate.

Sarcomata, however, constitute a very important variety of tumors in this region. Their practical importance depends upon their frequency of occurrence, since they are by far the most common of all the tumors of the jaw, their dangerous character or malignancy, and the fact that they may readily be mistaken for benign processes, such as tumors, cysts, or even osteomyelitis, with not infrequently consequent delay in treatment and loss of life.

Exclusive of sarcomatous epulis, there are two varieties of sarcomata of the jaw, dependent upon the site of the growth; namely, the surface or periosteal form, and the central or myelogenous. The periosteal type presents a flat or rounded mass under a thickener periosteum. It begins, as a rule, on the outer surface of the inferior maxilla. As growth advances the lower margin of the bone is reached and becomes rounded or overhung; later the growth extends around this to the inner surface and finally the whole bone may become surrounded. There is, as a rule, no bony shell, but occasionally bone is laid down by the periosteum over part or the whole of the tumor, giving rise to a firm or crepitant bony covering.

The myelogenous variety, as seen in the inferior maxilla, grows between the tables which it separates unequally and gives rise at an early date to a spindle shaped thickening in the bone. The lower border becomes rounded out, both surfaces bulge, and ultimately the teeth fall out. As growth advances the bony covering becomes progressively thinned, until finally an egg-shell crepitus can be obtained. When the tumor penetrates the bone, growth becomes much more rapid. After this the tumor tissue itself can be palpated. It may be firm or soft, but usually is of

irregular consistency. Cysts at times form and give rise to the large cysto-sarcomata with fluctuating areas.

The sarcomata of the maxillae occur in relatively young individuals, that is, between the ages of fifteen and twenty-five. When the tumor is central the early objective symptoms do not differ from those of other intra-osseous growths of the jaw; when peripheral, one can recognize at an early stage the consistency and character of the tumor.

Ultimately, the sarcomata, if left to themselves, become enormous, and in their growth lead to ulceration and extensive involvement of the adjacent parts. Enlargement of the cervical lymph nodes is rare and when it occurs is often due to a super-

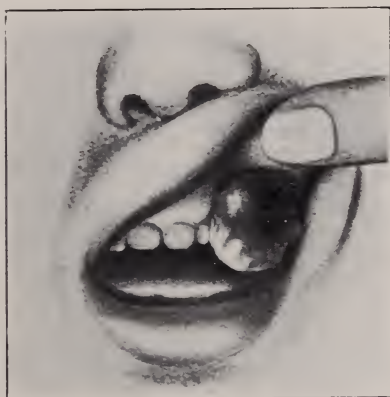


FIG. 11.

Epulis. Microscopically, a Giant-celled Sarcoma. (After Mickulicz.)

imposed inflammatory process. Recurrences, both local and general, are frequent after removal.

It is evident, then, that these sarcomata are malignant growths. The degree of malignancy is indicated by various factors: the size, variety, rapidity of growth, extent of involvement of adjacent tissues, and ulceration. The giant celled variety is relatively benign in character and slow in growth; it rarely recurs after radical removal, and rarely becomes generalized. The round and spindle celled varieties, however, are more malignant and, according to Estlander, the average duration of these without intervention is less than one year.

With the sarcomata must be considered the so-called epulis (Fig. XI). The term epulis, which means literally upon the

gum, is used to designate an important, characteristic, and common tumor composed of connective tissue. Occurring in youth or early adult life the tumor appears as a smooth rounded bright red body on either alveolar arch. It is sessile or attached by a stalk or pedicle which reaches to the maxilla usually in a tooth socket. It is of slow growth; the average size is about that of a cherry, but it may be larger. Beyond the mechanical disadvantages caused by its presence, and at times some bleeding, the only distress is the occasional occurrence of toothache, a feeling of tension during the first period of growth while the tumor is intra-alveolar.

Arising from the periosteum the tumor is of connective tissue origin and presents in its structure various combinations of the connective tissue elements, cells and fibres. Occasionally, it presents solely a fibrous structure and is then a fibroma. More often, however, in addition to the fibrous, numerous cellular elements are seen microscopically, either as spindle shaped cells or more commonly as so-called giant cells. Under these conditions, the tumor is identical in microscopic appearance with certain forms of giant or spindle celled sarcoma, and consequently must be designated as such. This term, however, naturally leads to the danger of assuming in an individual case that the growth belongs to the truly malignant group, which may lead to unwarranted alarm and even to unnecessarily radical surgery. The tumor does not form metastases, though it recurs if incompletely removed, is as a rule of slow growth, and infiltrates the bone slowly.

It must be remembered, therefore, that the clinical and not the histological characteristics are the criteria in this class of tumor; that whatever the microscopic findings may be the tumors are all relatively benign, though the growth must be removed because occasionally a tumor which was primarily a slow growing epulis gradually extends to the bone and develops there rapidly. The treatment consequently should not be heroic, and consists in the removal of the growth with its point of implantation, for which purpose it is always necessary to remove a small piece of bone and its overlying periosteum at the site of the attachment. In this procedure it is usually indicated to remove one or more adjacent teeth.

Having reviewed now the characteristics of the important tumors and cysts we come to the most important and practical

phase of our subject, namely, the differential diagnosis. In this connection the all-important question is whether a given growth for which advice is sought is malignant or benign.

The rapidly growing periosteal sarcomata are not the source of much trouble, and in doubtful cases exploration and microscopic examination of the tissue is an easy, warrantable and conclusive means of diagnosis. On the other hand, the central tumors and cysts, those growing within the bone, give rise to difficulty, since in all of these conditions one can see and feel at an early period only the hard bulging bony wall which, on becoming thinner as the tumor develops, gives rise to parchment-like crepitus. The tumor tissue itself is, therefore, for a long time concealed. Yet certain deductions can be drawn. An osteomyelitis and gumma must, of course, be ruled out. Next one presses the investigation to ascertain whether the tumor is connected with the dental system. In the case of a dentigerous cyst there is regularly absence of a tooth on the side of the tumor, except in those rare cases where the cyst develops in connection with a supernumerary tooth, but here the X-ray will usually demonstrate the presence of an incompletely developed tooth and thus reveal the character of the growth. A tooth is likewise arrested in its development in the case of odontomata. Yet, as Broca pointed out, an odontoma invades the alveolar margin and projects on both surfaces, whereas the cyst develops at some distance from the border and causes a projection of the antero-external surface. Moreover, the odontoma does not confine itself, as does the cyst, to preventing eruption of the attacked tooth, but prevents ordinarily the eruption of several adjacent teeth. No such signs are present in the case of other cysts, though in certain cases their cystic nature can be demonstrated by aspiration. But in many cases these cysts and benign tumors of non-dental origin, such as osteomata, fibromata, chondromata, and myxomata, can not be differentiated. Yet even at an early date their benign character is suggested by their very slow and ordinarily painless growth.

At a later period in their development the diagnosis is easier, for when the tumor has broken through or is primarily under the periosteum it is possible to note its consistency. Sarcomata are of variable consistency, hard in places, soft and even fluctuating elsewhere, and at times pulsating; whereas the benign tumors are most frequently of uniform consistency throughout, the osteo-

mata, chondromata and fibromata hard, the myxomata soft, and the cysts fluctuating.

Conclusion.—The feature which we wish to emphasize in conclusion is the necessity for recognizing at an early date the benign or malignant character of every growth of the jaw. Certain confusing features must be borne in mind in this respect. It must be remembered that the rounded pedunculated epulis, though microscopically a sarcoma, is benign, yet occasionally a tumor which was originally an epulis gradually invades the bone of the maxilla and undergoes rapid development. Moreover, adamantine and parts of other cysts, although composed to a great extent of more or less lawless accumulations of epithelial cells which may be pronounced carcinomatous after microscopic examination are not necessarily of the same malignant character as carcinoma elsewhere. Since such growths at times originate in supernumerary tooth follicles which may be situated in unusual sites and at a considerable distance from the normal site of teeth, as in the ramus of the jaw, their dental origin may be readily overlooked and they may be pronounced malignant and lead to too radical operation.

We have earlier called especial attention to sarcoma, which constitutes the chief malignant class, and to the various conditions which may simulate it clinically. It has become clear from what has been said that no eye or brain can with certainty recognize at an early date of its development the character of a tumor concealed within the dense bony walls of the maxilla. Later the diagnosis is easier and may even become self-evident, but at such a time the golden opportunity has passed and more than likely the patient has been doomed by procrastination or ignorance. If we admit the frequency of sarcoma and the imperative need of early and radical operative treatment in all its phases except epulis, it becomes essential always to bear in mind the possibility of malignancy and, in doubtful cases, not to await developments, as is so often done, but, after eliminating syphilis, to advise at once the only certain means of diagnosis, namely, an exploratory operation. By the gross appearance of the tissue and by frozen sections a correct diagnosis can be made, and early radical or other appropriate treatment can be inaugurated.

A CRUSADE FOR BETTER CARE OF THE TEETH.*

BY WILLIAM R. WOODBURY, M. D., OF BOSTON.

The city of Boston maintains six free public gymnasiums. These and the public baths constitute the Municipal Bath Department—a city department created and maintained to promote the physical and moral welfare of the community. They are institutions which come in the closest touch with the homes of the people; their central idea is to promote good health. Last winter in these gymnasiums the children's teeth were examined. One definite fact emerged from this examination. That fact was that there was a crying need to encourage children to take better care of their teeth. There was hardly a child that had good teeth; many of their mouths looked like a burnt district; only a very small percentage of the children ever cleaned their teeth; many of them never used a toothbrush; and not a few shared the use of one of the family tooth brushes—the mother and girls having a common toothbrush, and the father and boys using but one brush between them.

No one knows better than does your profession the evils which come from neglected teeth; and next to dentists this knowledge comes most frequently to physicians. The teeth are organs of the first importance; they are essential organs to digestion. When they are decayed and lost growth and nutrition are hindered; they are contributory factors in setting up diseased conditions of the throat, the nose, the ears, and the eyes; they cause a disordered condition of the nerves; they increase markedly the chances of catching infectious diseases; and decayed teeth and a foul mouth offer a favorable opportunity for the development of tuberculosis. And the best results in physical training and development can be obtained only when all the organs of nutrition are sound and can do their work properly. A complete knowledge of the physical needs of the body includes a knowledge of the care and use of the teeth. A proper regard for the body demands good teeth. "Healthy teeth, healthy stomach, healthy body," says an eminent German physician; and with these comes general good health.

*Read before the American Academy of Dental Science, Boston, Oct. 2, 1907.

At no period of life is there greater need of a clean mouth, sound and healthy teeth, and perfect nutrition than during the years of childhood. The child is growing, and normal growth and development depend upon perfect nutrition; and perfect nutrition cannot take place unless the teeth do their work—and it is an important work. Upon them depends the mental as well as the physical development. In childhood the habit of caring for the teeth should be formed. The child should be taught and encouraged to keep the mouth as clean as the face; and the habit should become as nearly as possible an instinct. In the home the foundation of the habit is to be laid. And parents should have a broad enough background of knowledge concerning the teeth to furnish the child with a motive, to give him a good and sufficient reason why he should spend five minutes every day upon what seems to him to be unnecessary. Mere words and nagging are ineffective. Even to teach a small thing one must have large resources. A wider knowledge of the hygiene of the mouth and teeth is needed in the home; it helps to maintain good health. A clean mouth is as important as a clean body; and cleanliness is the best guard against disease.

From a purely practical viewpoint a few minutes every day given to the care of the teeth saves money. Parents who allow a child to grow up with a filthy mouth and neglected teeth fail in their first duty to the child; they have denied him a precious inheritance—good health; and they compel him to spend not a little of the money he earns to repair the damage done by their neglect. "Mine son, he don't work mit his teeth," said a Dutch woman to a health officer who refused to give her boy a certificate of health because of the unwholesome condition of his teeth and mouth. No. But before her boy could be allowed to serve the United States government, in the army, in the navy, or in the postal service, or before he could qualify as a policeman or fireman in any of the sizeable cities (not a bad job any of them) he would have to spend many dollars and much time in having his teeth and mouth cleaned up. No matter how excellent his qualifications in every other particular, he would be "held up" until that was done. White, even teeth add greatly to the attractiveness of any face; and not infrequently they are a feature which carries with it a reassurance of neatness and honesty—which are excellent business recommendations. Recently a

young woman was refused a desirable position in a progressive department store simply because she had bad teeth.

To help those who use the municipal gymnasiums to get the largest benefits, and to promote a wider knowledge of the hygiene of the teeth and mouth, to help the people who need them to obtain these advantages, a practical working plan has been set going in the free public gymnasiums of Boston for creating an intelligent interest in better care of the teeth. A leaflet on the Care and Use of the Teeth was prepared and distributed; short, practical and interesting talks on the teeth and health are given the gymnasium classes; and an opportunity is extended to those who use the gymnasium to come to the "gymnasium doctor"—each gymnasium has a man and woman medical examiner—to have the teeth looked at. The children and the young women and young men who have a dentist are advised (and every one of them has needed the advice) to consult that dentist. Those who have no dentist and who cannot afford to pay for good dental work are informed of the clinics of the dental schools and the privileges they offer.

Much time and painstaking care were given to the preparation of the leaflet. After the copy had been worked out most carefully it was submitted to the frankest and severest of critics. Your president, Dr. Potter, submitted it to this Academy, and to the faculty of the Harvard Dental School. It was submitted to the Tufts College Dental School. This Academy and both the dental schools gave it their official endorsement. The proof sheets were shown to Dr. Samuel H. Durgin, Chairman of the Board of Health, and to Robert A. Woods, of the South End House. It also received the approval of Mr. James J. Storrow, Chairman of the Boston School Board, and of Superintendent Brooks. So far as was possible, every point of view was obtained, the desire being to distribute a leaflet which would be readable, concise and meaty; one which could not be misunderstood, which would bite into the memory, and its instructions such that everybody, child and grown-up, in any station in life, could put them in practice. The short talks on the care of the teeth and what good teeth meant were given the gymnasium classes by the instructors at the beginning of the class work. They were short talks of only a few minutes, and in the vernacular, and they were made to appeal to the everyday, practical com-

mon sense of the young women and young men; and the children listened with the closest attention to these talks. Then came the class work and a right good time. This year the same kind of work is to be continued; and it is to be broadened by requiring of every child that comes into the gymnasiums an examination of the teeth and mouth as well as of the body. And the leaflets are to be distributed in all the public baths as well as in the gymnasiums. There are 23 public baths in Boston—7 of them being all the year round baths. The total yearly attendance at the public baths is more than 2,500,000.

Immediately an active interest in this movement was shown by institutions and organizations outside and beyond the Bath Department. The South End House, Denison House, the Children's Friend Society, and the Boston Dispensary asked for the privilege to distribute the leaflets, and to lend their hearty assistance in bringing the benefits of this crusade within the reach of a wider public. At the spring exhibition of the winter's work at the South Bay Union—under the direction of the South End House—was included a popular demonstration of the process of decay of the teeth. This demonstration was arranged by Prof. Ellen H. Richards of the Massachusetts Institute of Technology. The Civic Service House and the North End Union allied themselves in this movement. The Boston Association for the Relief and Control of Tuberculosis wrote to the Bath Trustees and asked for a large number of the leaflets for distribution. In his letter the Secretary of the Tuberculosis Association says:

"The well defined and frequent connection between carious or defective teeth and tuberculosis of the throat and glands as well as the concern we feel for general hygiene of the patients, have led to the making of a careful examination of the throat of each applicant for admission to the Day Camp of Consumptives by a specialist. The more obvious ills of the teeth may be determined in this way and the patient instructed to see a private dental practitioner or to go to one of the public clinics. Subsequent examination reveals to our physician the result of this instruction. A patient who could not be persuaded to profit by such advice would be discredited and probably excluded from the camp.

"After a recent visit to Rutland Sanatorium, where I saw how each patient is required to have a good tooth brush and to use it three times a day, I became convinced that we should use

the opportunity we have at our Camp Sanitorium to teach the value and delight of this habit.

"Accordingly a copy of the tract on 'The Care of the Teeth,' prepared under direction of the Bath Trustees of this city, has been furnished each one of our patients, and will be given each new one admitted. The patients will be directed to the clinics of the Dental College and one or more of the weekly addresses to the assembled group, will be upon care of the teeth as a factor in prevention and care of tuberculosis."

The Boston Tuberculosis Association has incorporated in its travelling exhibitions and libraries a dental exhibit and instructive and educative literature upon the care and use of the teeth. Recently the Bath Department received a letter from the local Tuberculosis Association, in Holyoke, Mass., asking for a generous number of the leaflets on the care of the teeth. A request for copies of this leaflet has come from the Philadelphia Association for the Protection of Colored Women. "Such a leaflet is something we have been wanting for a long time," says the Secretary of that association. The Children's Aid Society, the Children's Mission, the Little Wanderers' Home, and the Society for the Prevention of Cruelty to Children have written to the Bath Department asking for large numbers of the leaflets for distribution.

Undoubtedly the most fortunate incident in the life history of this movement happened in June. The Boston Transcript recognized its existence and made formal announcement of its birth, announcing "A popular movement being inaugurated for the better care of the teeth," and giving quite half a column to that announcement. The Transcript felt it could do this because the Secretary of the State Board of Health, Dr. Charles Harrington, assured them that people did not know all about taking care of their teeth; that such a movement was necessary. A little later the Cape Ann News printed as an editorial leader the Transcript's announcement. Charities, a weekly journal published in New York and Chicago, has asked for an account of this Boston movement, its beginning and its development. At the annual meeting in June of the Harvard Dental Alumni Association its seal of approbation was set upon this movement for the proper care of the teeth; and its council was authorized to give it the active co-operation of the association.

Even this brief account of the growth of this Crusade for the Better Care of the Teeth indicates that the movement should be organized. And I have a plan to suggest to you for creating an organization which will give it a permanent foundation and will permit effective work to be done in the broadest possible field. Boston has six dental societies. My suggestion is that a Dental Hygiene Council of the allied dental organizations of Boston be created; that council to consist of seven members, one from each of the six dental organizations, save the Metropolitan Dental Society, the largest, and that society to have two representatives on the council; and that this council help encourage and promote better care of the teeth by:

1. Putting into widest circulation the leaflet on the Care and Use of the Teeth.
2. Furnishing literature on dental hygiene, and information and assistance in promoting the cause.
3. Providing popular exhibitions—charts, photographs, instructions, literature—for settlements, schools and institutions.
4. Giving practical talks on the care of the teeth and popular and timely articles to the newspapers—country and city.
5. Co-operating with the organizations working to check and control tuberculosis.
6. Providing lists of registered skilled dentists who will work for nominal fees for deserving and worthy persons.
7. Discouraging the sale and use of dental preparations injurious to the teeth.

The Bath Trustees will extend to the Dental Hygiene Council the privilege of printing and distributing the leaflet.

At a recent meeting of the Bath Trustees they voted to distribute the leaflet gratuitously to the charitable and philanthropic institutions of Boston.

There are more than 20,000,000 school children in this country, one-fifth of the entire population; and the dental profession could do no greater service to humanity than to take an active interest in having dental inspection put into schools. Brookline has established dental inspection of its school children. Malden has taken initiary steps in that direction. And Salem is inaugurating a similar kind of work. The Boston schools are to give attention to the children's teeth. In this country we are far

behind Germany and England in this respect. Strassburg, Germany, is the first city in the world to have municipal school dentists; and there it was discovered that 95 per cent. of the school children had diseased teeth. The Massachusetts Board of Education has issued a pamphlet on medical inspection, and in that pamphlet is a chapter on the teeth. United and earnest effort on the part of the dental societies, augmented by the individual endeavor of the dentists themselves, will bring about, in comparatively short order, a very general adoption of dental inspection in the schools. It would mean the widest possible practice of the excellent suggestions made by your committee of dentists who prepared the chapter in the State Pamphlet. The State Board of Education, through its Secretary, Mr. George H. Martin, sends its good-will and its endorsement. Mr. Martin and Superintendent Brooks of the Boston Schools, have expressed themselves in favor of dental inspection of school children. Mr. Brooks wanted to inaugurate it last year in the Boston schools. "It should not be done," he says, "in the spirit of paternalism; it should be preceded by a popular education of the public." No one can give better information or more assistance in promoting better care of the teeth and educating the public up to asking for dental inspection in the schools than can the dentists themselves.

One of the most effective ways of pointing facts, of convincing people into doing things is to let them see with their own eyes. By that token popular exhibitions can work great good. Photographs, charts, diagrams, make deep impressions; and these, together with popular literature and printed instructions and information, will do more than any other one factor in promoting better care of the teeth. The college and social settlements in Boston and throughout the country stand ready to lend their assistance by providing the opportunity and space for such exhibitions. Mr. Robert A. Woods assures me that social workers everywhere will give their heartiest support to such a movement.

The lay public and the newspapers expressed genuine appreciation of Dr. Samuel A. Hopkins's lecture at the Harvard Medical School last winter. How to take good care of the teeth is a matter of intimate concern to everybody, and the public wants to know how it can be done. Popular lectures by dentists of acknowledged reputation would receive serious attention.

The newspaper in Boston which is most read by the people

and which influences most strongly public opinion (it is a matter of serious regret that its influence is not always for the best) is persistently conducting a crusade of its own against neglected teeth. The text is forceful and convincing, and the facts are stated with a vigor and directness which its readers cannot but feel. Country newspapers could do their readers immense good by equally effective articles.

To have the dental profession of Boston, its schools and its organizations, go on record as a working body with the organized movement for checking and controlling tuberculosis would be cause for much pride in the community. The Boston Association for the Control and Relief of Tuberculosis has already opened the way; and they are ready and willing to give and receive co-operation.

There is a large number of worthy and industrious working men and women who cannot take the time to go to dental clinics; who can afford to pay for dental services; who want good work; and who don't know where to find it. It has been suggested that lists of registered, skilled dentists be provided for the benefit of such persons, in order that they may have dental service which is not hurried and indifferent—or worse; and that they may obtain deliberate, painstaking care combined with skilful and intelligent work.

It is a well-known fact that a large number of the dental preparations on the market injure the teeth; that commercialism is the dominant factor in their manufacture and sale. Much harm comes to the unsuspecting and ignorant public through their use. An organized effort on the part of the dental profession to protect the public against such injury is needed quite as much as is the work of the medical profession to discourage the sale and use of injurious patent medicines. Here are the words of one of your own profession:

"Dr. W. D. Miller said there has not been for years any doubt in my mind that most cases of wasting observed in our practice are due to mechanical action, which means in particular the action of the tooth brush combined with toothpick."

"Dr. R. R. Andrews has already shown from his researches in enamel formation that there are faulty enamel bodies as also imperfectly calcified dentine. Dr. George H. Wright has shown that wasting is produced not alone by the abrasive action of

powders, but through the agency of acids derived from various sources. It is necessary that we should know the contents of some of the abrasives used in the form of tooth powders and pastes. Some of the following ingredients (in varying amounts) have been found from careful examination by chemical analysis, washing and photomicroscopic study, to be the constituents of English, French, German, Chinese, Japanese and American tooth powders and pastes: Three grades of pumic, from 5 to 15 per cent.; charcoal, whiting, impure cuttlefish bone, containing grains of sand; insoluble grits, talcum, stannic oxide, cliff chalk, infusorial earth, emery, microscopic marine concretions, pulverized oyster shells, calcium carbonate, sodium chloride, sodium bicarbonate, sodium perborate and many others of this latter group. We find in the pastes oily substances, glycerine, vaseline, honey, orris root, white sugar, vegetables fibres and other unknown inorganic and organic substances.

"When we consider the extravagant claims of the manufacturers of tooth powders and pastes, should we as a profession stand silently still and permit without a word of protest the too free use of dangerous and harmful ingredients of the character already noted? Is it not our duty to instruct and educate our individual patients as to what is destructive and what is useful? And for that larger world, the people who are rising in the ranks, do we not owe to them also, something of the advantages and blessings of this later knowledge?"

An American lady who was visiting Magdalen College, Oxford, expressed a desire to imitate those wonderfully green and velvety lawns, and she was told that nothing was easier; she had only to mow and roll regularly for 400 years. These seven brief articles of faith are not easy to accomplish; they require work and time. I realize it. No one can realize it better than I; and I speak from experience. But the time seems ripe to begin this work. It is already begun; and it is ready to be organized and continued. The plan of organization suggested is a logical one. It calls for a compact working council of the organizations that can best conduct this crusade. The dental profession should be the leaders in dental hygiene. I can promise you the co-operation of all the organizations and institutions which now constitute the movement; and you can bring many more to you to help promote it. It has been suggested that a general conference be

called to define and extend the plans for future work. And who could better call such a conference than the Dental Hygiene Council of the allied dental organizations of Boston? Next May, in Chicago, is the national conference on Tuberculosis, and the International Congress on Tuberculosis meets in September, in 1908, in Washington.

Dr. Jessen, of Strassburg, calls carious teeth "*Die Volkskrankheit*," the People's Disease; and a crusade for better care of the teeth is a crusade for the relief and control of the People's Disease.

SOME THINGS WE SHOULD BE RESPONSIBLE FOR TO OUR PATIENTS.*

DR. LEVI C. TAYLOR.

Dentistry has reached a standard when it may claim to be the most important specialty of health preservation. When we see a patient and are asked to prescribe what course to pursue to best preserve the teeth, (as that is what most people suppose the duty of the dentist to be), we have thrust upon us an opportunity far in excess of what many practitioners seem to realize. It is our duty to see what the condition of the entire mouth presents, to comprehend the far-reaching consequences of what we find exist, and know what changes can be made that will better those conditions.

A child comes to us with mouth tender and unused, the mucus viscid and unhealthy, teeth coated with slime loaded with vile bacteria, the child nervous and irritable. This nervousness arises from mouth conditions. It becomes our duty as practitioners so to change these conditions as to produce a healthy, normal system. This is possible and has been so proven beyond question by those who have adopted the correct principles of changing environment.

May I ask each and all of you if you have ever seen a perfectly healthy mouth and a weakly, nervous child? Vice versa, have you ever seen a nervous, sickly child that did not have a

* Read before The Boston and Tufts Dental Alumni Association, October 9th, 1907.

viscid mouth? Take the sickly child and commence a frequent prophylaxis treatment and notice how soon this nervousness disappears.

Here, let me define the meaning of prophylaxis: a surgical or manipulative treatment for the preservation of health. In the mouth it should imply the removal of all foreign substances which can be a menace to health, the removal of all decay in the oral cavity. The frequent stirring of the soft tissues by stick and pumice, and then the frequent use of a stiff brush on both teeth and gums by the patient until it can be accomplished without fear of pain or discomfort. I have been asked if God intended that we resort to these artificial methods as a means of health. My answer is "No." Neither did he intend that we live the artificial life in warm houses, eating soft, cooked foods. If we persist in such a life, it becomes necessary for us to adopt some artificial methods to restore health, which comes only from the vigorous use of each and every part of the human anatomy. The mouth is the gateway of all animal life, therefore, mouth sanitation is the first principle of health, for the greater number of all the ills of man will be manifested in the oral cavity, so that, by the examination of a mouth and throat, you can tell what the general health of the patient is without looking further.

Prophylactic treatment is a therapeutic treatment for the preservation of health and is often used to convey the same meaning as prophylaxis, but we hear men using these terms alternately as meaning one and the same thing and, in the next sentence, using the term cleanse. The term cleanse is defined: "To purify and make clean," which, in the broad sense, has a slight meaning under the head of oral hygiene, but dictionaries all give us a synopsis to indicate that it is intended as a religious term, i. e., "To walk in the light of Jesus Christ, whose blood cleanseth from all sin." We have generally found that one using these terms interchangeably is not very familiar with healthy mouths, but we often find him doing some fine mechanical service and omitting the more important principles which lead up to health. It is not my intention to under rate the value of filling teeth, but there are many other methods of mouth care equally valuable that must be used in producing such results as are necessary to health.

Patients and many, far too many, dentists refer to this prophylaxis as cleaning teeth, and so far as it pertains to the removal of the bacterial poisons and what debris may be remaining around the teeth, it may be considered correct, but that department which pertains to the stirring up of the pericemental tissues and making them vigorous, we do not believe the term covers. Prophylaxis would comprehend both, and is a much better term to educate the patient up to, by constantly using it and explaining it in detail. Then we shall be better appreciated and in a far better position to do our patient the greatest good.

There has been considerable said of late about teaching cleanliness in our public schools. I have no objection to the teaching of cleanliness of the oral cavity always and everywhere.

There has been a class of men who have been teaching oral cleanliness for years, and a still smaller class who have been teaching more advanced methods also. The primary teachings have seemed to increase immensely, since those who have tried to show up the physiological betterments to the human mouth by the adoption of prophylaxis, which is an advance that some of our second school advocates fail to incorporate into their teachings, and, by their failure to incorporate, would indicate they had failed to comprehend. It seems to me no honest practitioner can pass lightly over this when he fully realizes the benefits that may attain by prophylaxis treatment well followed by a full understanding of the health that may be attained by such practice.

Many who have jumped at conclusions use terms freely, but, when their treatment is made, it seems to be with the engine, which can never reach beyond the primary principles of cleanliness. I do not know of a man who has attained a well-grounded understanding of the physiological principles involved that has not arrived at the same conclusion: i. e., that the full benefits of prophylaxis must be by all hand work, and, while this is true to the fullest extent, it does not exclude the dental engine from some cases of cleaning the crown ends of teeth after the physiological betterments have been made by stick and pumice in stirring up the peridental membrane.

Comprehension in our care of the mouths of the young seems to demand frequent prophylaxis, which should be the leading principles in our responsibility.

In the winter of 1875-'76, Doctor S., of this city, sent a man to Dr. John M. Riggs, of Hartford, Connecticut, to have his mouth treated for what is known as "Riggs' Disease." I well remember the emaciated condition of the man, who was a Philadelphian. He had been under treatment five years in Philadelphia by eminent specialists, then came to New York, and, later, went to England, France, and Germany. Returning home in despair, he thought he must soon pass the Great Divide. Hearing of a noted stomach specialist, he came to this city of Boston. While here, a violent tooth-ache caused him to consult Dr. S., who informed him that his mouth was in a vile condition of neglect, and urged him to see Dr. John M. Riggs, of Hartford, Conn. After some telegraphic communication, he went to Hartford. Dr. Riggs treated a few teeth each day. When the work was completed, Doctor asked him to wait five days, as he wished to revise his mouth. The morning of the fifth day came and the man appeared with brightened eye and beaming countenance, remarking that, that morning, for the first time in five years, he had eaten a good square meal and relished it, and he now believed he was going to get well. Three weeks later, he wrote Dr. Riggs that he had "hung up his doctors, dismissed his nurses, and gone to work." This, after vainly spending thirty thousand dollars with noted stomach specialists. I well remember this case, as it was an extreme one, and the impression upon my mind was such as to lead me to believe that there were only a few such cases and it was hardly worth while to trouble myself as I was only a dentist. The history of this case, as the patient related, leads back with an understanding of how that man suffered in his early years of sickness and how the pus was beginning to form and exude to mix with his food until his stomach was broken under the poisonous influences. The alveoli gradually wasted until deep pus jackets had formed and, each year, the condition of the patient was growing worse.

That same Spring, Dr. Riggs, standing over a patient for whom he was operating, told me that if we would clean teeth well enough and as often as circumstances required, we would have no decay. That same young lady has been my patient ever since, and, by constant care, has had little done, except a thorough prophylaxis treatment about every three months.

A few years since, a lady whom I over persuaded to adopt

prophylaxis treatment each month, after a year and a half, remarked to me: "I think it very strange that I should doctor for rheumatism for eight years and then come to a dentist and have it cured." I explained to her that every mouthful she pretended to masticate she poisoned, and, after a time, her stomach rebelled. The whole system becoming abnormal, the skin inactive and failing to throw off the poisons, they were passed to the internal organs, which declined to care for them, leaving them in the system, and she thought she had rheumatism. All we did was to remove the cause, and the stomach soon became normal, the skin became active, the poisons were thrown off, and she thought the dentist had cured her rheumatism. Do not think I am sanguine enough to believe we can cure all kinds of rheumatism, but there are some of this nature of which I have spoken which we can cure or relieve.

A contributor to one of our journals says: "We must have the public undersand that saving of the teeth is the most important part of dentistry, and that it must be paid for." In the same paragraph he says: "If you can only inculcate into the public mind the fact that you have within you that which is best from the professional and from the public standpoint, the question of fees will be of the least importance to you and the patient." I am inclined to think this last quotation is of considerable importance, and it has been my position for many years that we should show the patient that we are working for his good, and when a practitioner can show results, the question of fees will not enter, and I feel inclined to let each practitioner and his patient settle the money matters, but am strongly in favor of the service to the patient being of the best, always. We are responsible to our patients when we assume the care of their mouths. I must, however, take exception when he says "saving teeth is the most important part of dentistry." I consider the saving of teeth of great importance, but the saving of the health is of much more importance, and the competent dentist should practice on a broader basis as his motive than the saving of teeth. I believe in the saving of teeth as one of the assistants to the maintenance of good health.

We have already alluded to a few of the responsibilities along the health line, but how about the auxiliary work, the filling of teeth which, by neglect, have been allowed to decay, form-

ing deep cavities of decomposing matter which is decidedly poisonous to the general health, by poisoning the food on the passage to the stomach. For a century we have been filling teeth for the purpose of saving them, and the various methods of filling have all had their advocates. Tin, being very ductile and more comfortable to tooth structure than most metals, has retained a position in the profession to this late day, still claiming a few, lonely advocates. Non-cohesive gold, proving ductile, has been found in teeth that were almost immune from decay for thirty and forty years. As dentists found the necessity of more extended operations, they pushed forward to the cohesive gold. In this it was soon proven that there were extended possibilities from the standard of construction that made it very fascinating to him whose whole education was mechanical.

Our Western friends seem almost carried off their feet with extension for prevention, making great claims for their methods. In conversation with one of their advocates recently at Jamestown, he admitted that it would be useless to attempt extension for prevention until the patient was twenty-five years, or twenty at any rate, before he would commence what he calls permanent work. In other words, he admitted that it was necessary to have the patient live two-thirds of an average life, before permanent work could be accomplished. My friend would not admit that a filling was permanent which was made for a child and had lasted ten or fifteen years, but a filling made at twenty-five, to go to the grave with its owner at thirty-five or forty, was a permanent filling. Now, gentlemen, can you explain the reason why one should be permanent and the other temporary? Is anything permanent in this world, except we use the term comparatively?

Filling children's teeth has been one of the unsatisfactory departments of our calling, as the use of metals has proven nearly or quite worthless as a saver of teeth. The phosphate cements have proven good savers of teeth, but the dissolution of the cement has been so common that we have found patients quite dislike the frequent renewals, and the danger of neglect on the part of the patient has not made for the cement a reputation wholly enviable. We have found that, by pricking into the cement a little well-annealed porous gold and immediately following it with a hot flat burnisher for one minute, a filling can be

made which will earn for itself a reputation for preservation and duration far in excess of anything else I have ever heard of. It is not necessary to enlarge even the smallest cavity; if the decay is removed that will be sufficient, then proceed to fill as described above. If the cavity is a deep one, it will be well to wet it over with a little rosin dissolved in ether before applying the cement and gold, thereby making a hygienic filling which has earned for itself a reputation far in excess of all others. For years, my principle has been that the saving of the teeth and more particularly the health of our children is the one important feature of a dental practice, and the embodiment of the education of the child by proper teaching while under our immediate care will do more for that patient than all things else. Hence, the importance that every practitioner be a good teacher. Far too many look upon the obligation to their patient as simply to tell the patient what he should have done and do the work without any explanation, and the patient has little or no idea why such work was done, other than it was his duty to hold the mouth open and pay the bill. How many such practitioners have any idea that they are allowing the golden opportunity to pass when their patient should be informed in the various methods of bettering his condition? The education of such will make far more appreciative and faithful patients.

The time has come when a respectable practitioner can ill afford to use bridge work, except in very conservative cases, with an apology to the patient and a whole chapter of the responsibilities for cleanliness extending over the few short years of its duration.

We are often called upon to deal with the narrow arches in child life and adults, but, with many, it has been considered as belonging to the rhinologists, but here lies a responsibility upon our profession which cannot be lightly tossed aside to some other practitioner. There is little chance for argument that mouth-breathing is conducive to many pathological conditions, not the least of which is the abnormal, superior aspect of the mouth. In these cases, it is our duty to explain to the mother and child how the air, instead of passing through its normal course, the nasal cavity, and, by gentle pressure, keeping the bones of the floor of the nose down in place, passes through the mouth, pressing in the opposite direction against the roof of the mouth, producing a

small nasal cavity and high, narrow arched oral space, with a shortened upper lip. This abnormal habit often grows out of the frequent use of the mouth in talking, or by some obstruction blocking the nasal route of the air, such as bony deformities, abnormal membranes, or adenoids. The question arises, how can we overcome this pernicious habit? First, remove any obstructions in the natural course, and then, follow the plan suggested and practiced by Dr. Fitzgerald, a rhinologist, who has found that by sealing the mouth at bedtime with a piece of adhesive plaster, splendid results are obtained. This method will not only cure most forms of nasal catarrh, but has a much broader use in the proper development of a child's face and mouth. Notice when the mouth is closed and a full breath inhaled, how the nose will expand; and, as the nose widens, so will the nasal cavities be expanded, and, if continued, the jaws will assume a normal shape and position. Sometimes, to accomplish this, it is necessary to assist a little by regulating appliances, but why carry on extensive orthodontia treatment for shaping an arch, if the primary cause, mouth-breathing, is not abolished? Discontinue the cause, then assist nature to undo the harm already done.

Orthodontia has become recognized as one of the important factors in general mouth care, and should be recognized in a reasonable manner, more as a preventive treatment than the waiting until the mouth has nearly or quite developed. The ability to watch each little indication in the development of a child is what I am claiming as one of the principle responsibilities we owe our patients. The education of child and mother at each stage in the development is what is desired by every intelligent patient, and what should be known, with ability to teach, by every reputable practitioner. Frequent prophylaxis will aid much in the better development of the jaws while the teeth are erupting, a fact every one should know and appreciate, as it relieves sensitive mouths in both old and young and enables them to masticate their food properly. Our schools are striving to do well, and no one will deny it, but their teaching seems to lead up to mechanical excellence, rather than the broader fitting of their students to the responsibility they owe their patients along the health line. I asked a graduate recently why he filled teeth, and the answer quickly came, with all honesty, "to get money." In

further questioning him, I was not able to discover that he had any conception of saving teeth or that he owed the patient any consideration. We feel humiliated to admit that we have far too many such practitioners to-day, when there are so many precious opportunities for doing our patients much good by the use of the hygienic filling, assisting him who is able to teach and practice modern prophylaxis, which does so much for the health and betterment of our patients.

CONSIDERATIONS IN THE DIAGNOSIS OF FACIAL NEURALGIA.*

ALBERT L. MIDGLEY, D. M. D.
PROVIDENCE, R. I.

To proceed intelligently, accurately and with the greatest degree of success in the treatment of any disease of the tissues in and about the mouth, or in any other part of the body it is absolutely essential that we make a correct diagnosis. To be able to make such a diagnosis it naturally follows that a thorough knowledge of pathology is indispensable. Modern medicine and surgery owe their present high planes in the world of science largely to the brilliant investigations and contributions of the pathologist and we can also say that the science of dentistry began to receive the recognition she now has when her followers studied deeply the principles of dental pathology and applied its teachings in the treatment of disease.

What can be a source of greater pride and satisfaction to us and of greater importance to the comfort of our patients than to be able to rightly diagnose and successfully treat a stubborn, obstinate neuralgia? On the other hand, what can be more humiliating and discouraging to us and more detrimental to the welfare of the patient, who has confidence in us, than to lack the ability to discover the cause of a simple neuralgia?

Value of Roentgen Ray in Diagnosis.

In practicing the principles of pathology one of the most valuable assets we possess is the Roentgen ray. While the his-

* Read before the Harvard Odontological Society, October 17th, 1907.

tory and symptoms will lead us in most instances to a correct diagnosis, it is often exceedingly difficult and sometimes an impossibility to definitely locate the cause of pain. The truth of this statement is demonstrated to you by this first lantern slide. With the history and symptoms of malposed or erupting molar, in what other way would it be possible to determine the location of the tooth as it is here shown. (Fig. 1.)

With the aid of a few skiagraphs we will now pass to a study of some of those conditions which are met with in every man's practice, by means of which you may compare favorably the results of both positive and faulty diagnoses.

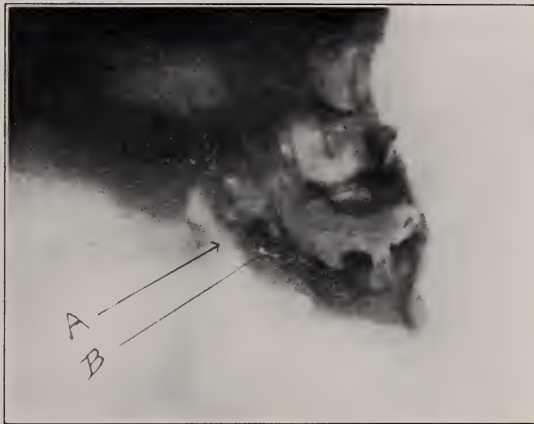


FIG. 1.

- A. Malposed molar situated in the ramus above the angle in a longitudinal position.
- B. Shows necrotic area of bone which discharged externally on the face near the angle of the jaw.

Dental Caries and Pulpitis.

Owing to the number of subjects to be discussed it is sufficient to merely call your attention to dental caries and pulpitis with its resulting decomposition and consequent abscess formation. These diseases most frequently prevail and are very prominent factors in the production of pain. They are generally easily recognized and their pathology is very familiar to you. Therefore, we will not underestimate the value and importance they hold if we but say that they demand due thought and should receive it in our search for the cause of pain.

Malposed and Supernumerary Teeth.

Aside from dental caries and pulpitis, one of the most com-

mon sources of pain in the tissues of the face, mouth and jaws is a malposed or supernumerary tooth. In certain obscure cases impacted and erupted third molars have so often been the offenders that I have made it a rule to immediately look with suspicion on this tooth and resort to a skiagraph. (Figure II). With ankylosis, swelling and pain, no history of violence, and none of the teeth sensitive on percussion, a diagnosis can be readily made with the probe or a sharp chisel under cocaine anaesthesia, and even in these easily discovered cases, our course of treatment is governed to a great extent by the radiograph. However, in doubtful and more difficult cases when there is normal mobility of the jaws, little or no soreness, but a continuous dull pain in the

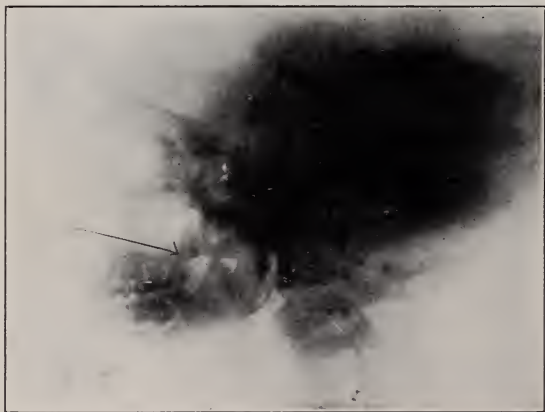


FIG. 2.

Arrow indicates unerupted superior third molar the root of which enters the maxillary sinus.
Absence of symptoms upon removal.

region of the masseter muscle, we must depend entirely upon radiography for a confirmation of our opinion. In connection with this subject it is well to remember that old roots may be covered by the gum where teeth are missing, and though foreign to this discussion it may be of value to say that applications of campho-phenique and orthoform are efficacious in the post-operative treatment of impacted third molars. (Figure III).

A case in which the condition and symptoms closely simulated an impacted third molar was the following: A boy 18 years of age had considerable pain and swelling from a dento-alveolar abscess of the left inferior first molar, which apparently was the

cause of his inability to open the mouth. The tooth was extracted but the partial ankylosis still persisted, although the radiograph gave us no clue. Upon further examination a scar was seen in the region of the masseter muscle in front of the lobe of the ear, which indicated that an incision had been made in a transverse direction to the fibres of this muscle. It was also learned that this partial ankylosis had existed since the boy was 6 years old, at which time a surgeon had lanced an abscess of the ear that had pointed in the above named area, leaving this scar. Poor surgery was the only explanation we could find for his present affliction, for his jaw opened obliquely with muscular tension in the section referred to.

Another case of interest in which the X-ray showed negatively was that of a baby 3 years old who was able to open his



FIG. 3.

A. Impacted third molar at angle.

B. Undeveloped third molar.

mouth but a quarter of an inch. There was an absence of all other abnormal conditions and signs and since the history showed that the child had been injured at birth by forceps in the region of the joint, we could find no other satisfactory cause.

Maxillary Sinusitis.

In our further search for the cause of pain we should bear in mind the possibility of maxillary sinusitis. Inflammatory conditions of the maxillary sinus are quite often intimately associated with disease of the accessory air sinuses and although our field and that of the rhinologist overlap, as it were, we should be familiar with the pathology of this cavity for no other reason than to be able to exclude dental causes which, according to Weiss, produce 75% of antral affections. This statement alone shows the important position of the dental surgeon in relation to maxillary sinusitis.

Of the many symptoms more or less prominent in studying this disease, the most characteristic are pus discharge from the nostril on the affected side and pain referred to the area outside the nose and under the eye. Other symptoms are swelling and bulging of the thin walls of the sinus, crackling sensation under pressure, a sense of uneasiness and fulness in the cheek region, dusky color of the skin, pain which is intensified or lessened as the head is held in different positions, and a consciousness of fluid in the cavity as the head is moved about. With most of these symptoms present there can be but little or no doubt in expressing a positive opinion. From a dental standpoint the etiological factors are abscessed teeth and roots covered by the gum; foreign bodies,



FIG. 4.

- A. Indicates line of fracture.
- B. Impacted third molar.
- C. Root, crown of which was broken from the blow received. Root canal showing plainly.

such as broken broach, gutta percha filling, cotton dressing, or a root forced into the sinus in extraction; necrosis of syphilitic, tubercular, traumatic or chemical origin and benign and malignant growths.

In the diagnosis and treatment of this disease too much stress cannot be placed upon the importance of a careful and thorough examination of the teeth, for the extraction of a tooth alone has been known to relieve all symptoms.

Necrosis associated with disease of the maxillary sinus is determined by the history and probe, and the age and history with a consultation between rhinologist and dentist is of value in

eliminating benign and malignant growths. Differentiation should also be made between tumors of the gums and dentigerous cysts. In this type of cases the nasal discharge will be found wanting. We should be beware of sympathetic pain localized in any of the teeth that we may not err in unnecessary extraction and realize also that while trouble with both antra is a rare occurrence, it is within the range of possibilities.

In locating foreign bodies and roots under the gum we are assisted materially with a radiograph and the presence or absence of pus is indicated effectively by transillumination.

With sound teeth on the affected side, the radiograph showing negatively, and no necrosis or growths present, it is reasonable



FIG. 5.

Arrow indicates line of fracture. Displacement very little.

to suppose that empyema of the maxillary sinus is due to or linked with some diseased state of the accessory air sinuses and therefore not in the province of the dental surgeon to treat.

Necrosis.

Owing to the frequency with which it is met and the disastrous results following a faulty diagnosis, necrosis of the maxillary bones demands our attention. Its most common causes are abscessed teeth, syphilis, tuberculosis, traumatism and chemical poisoning from arsenic, lead, mercury, or phosphorous. It is diagnosed by a foul characteristic odor, the probe, and history. This disease or caries of the bone is most often associated with malposed molars, dento-alveolar abscesses or syphilis and

stomatitis or dental lesion allied with the infectious diseases of childhood.

Fracture of the Maxillary Bones.

With a history of violence, immobility or impaired movement of the jaws, crepitus, swelling, pain, drooling and loss of alignment of the teeth, a fracture is easily recognized. Modern surgery and intelligent treatment require a radiograph that we may not only know the position of the fragments and the exact line and location of the fracture, but also learn whether the bone is broken in one or more places. (Figures IV, V, VI, and VII.)

Tic-Douloureux.

Fortunately, tic-douloureux is not commonly met with, yet



FIG. 6.

Lateral view of fracture of inferior maxilla. (A) Fragments of bone and pieces of bullet seen in region of second bicuspid, first and second molar.

Arrow indicates remainder of bullet which caused fracture, lodged in tissues of neck.

the prognosis is so grave and the neuralgia so severe and violent that we should be familiar with its pathology. To my mind the best way to reach a diagnosis is by exclusion and then we should not feel sure until we have exhausted all the means, methods and appliances known to dental science, for the relief from a minor neurectomy is generally not permanent and a major operation, as a last resort, is apt to prove fatal.

The most characteristic symptom is paroxysmal pain and a typical contortion of the muscles of the face while this is in progress, which is not found in any other disease of the face, mouth or

jaws. Although the pain may be localized in any one of the three branches of the fifth nerve at various times, it usually predominates in one particular branch. Aside from pain there is a marked absence of the cardinal symptoms of inflammation. Pain may be present in one tooth on one day and in another the next day and so on. The tooth is sensitive to cold and sore on percussion and the patient feels certain that this tooth is the cause. Extraction, however, affords only temporary relief, for we soon have a like condition to deal with in another tooth in the same region.

We should exclude impacted and supernumerary teeth, maxillary sinusitis, abscessed teeth, roots and foreign bodies, fractures, stone in the salivary ducts, symphathetic pain, reflex neuralgia in



FIG. 7.

Autero posterior view of Fig. 6, to definitely locate bullet which was easily removed.
Arrow indicates bullet in superficial position.

neuropathic patients and especially a suspicious history. It is here urged that we weigh well a syphilitic history and the possibilities of a gumma before advising an operation.

Stone in Salivary Ducts.

Calculus stones in the ducts of the salivary glands have caused much annoyance and should be thought of by the observing dentist.

A case of this kind was that of a young man 24 years of age who complained of pain in the region of the left inferior second molar with swelling of the tissues near the opening of Wharton's duct. All the teeth were sound and the symptoms were not pro-

nounced enough to warrant a diagnosis of either tic-douloureux, pericementitis or dento-alveolar abscess. The raidograph also failed to enlighten us. An incision was made in the swollen area and upon passing a probe a stony substance was felt. This was removed with a mouse tooth forcep, after which all symptoms disappeared.

Deformities.

Deformities acquired or congenital, though very seldom the cause of pain, should be borne in mind and valued in giving an opinion.

Infectious Diseases and Stomatitis.

The oral manifestations of syphilis, tuberculosis, cancer, the exanthemata and the other different forms of stomatitis should be considered in our search for the cause of pain. The grave results attendant upon an incorrect diagnosis are so well-known to us that we should be acquainted with the etiology and symptomatology of these lesions. A knowledge of these enables us to render efficient treatment to the afflicted and to protect our innocent patients and ourselves.

In conclusion may I ask, what greater work can we, as dentists, do for humanity than to relieve a sufferer of days, weeks, or even months of a persistent obscure neuralgia? In what better way can we uplift the science of dentistry and have her recognized even more than she now is than to study more earnestly dental pathology and apply its principles more carefully in the diagnosis of pain.

THE PHYSICAL DEFECTS OF SCHOOL CHILDREN.*

BY JOHN J. CRONIN, M. D.

It seems almost a truism to say that our criminal classes come from those having defective or diseased bodies. Among school children it has been clearly shown from the results of work done through the Department of Health, that defective vision, defective teeth, adenoids, enlarged tonsils, and other nasal obstructions are

* Read before The New York Institute of Stomatology, November 8th, 1907.

potential causes of inattention, disobedience, and lack of progress. Not only so; but these defects cause arrest of physical development, so that the child is deficient in stature and weight, below the normal size of children of his age, and is rendered more liable to inroads of contagious diseases, the attacks of which he has not the strength to withstand.

The early correction of these three physical defects of eyes, nose and teeth, changes a child from an inattentive, restless, stupid, incorrigible, non-progressive nuisance, to an attentive, calm, calculating, lively, submissive and progressive pupil.

Many of these cases have already been operated upon and the reports are that the improvement in scholarship is marvellous.

Now if we benefit only fifty per cent. of these defective children, and they become self-supporting and useful citizens, it becomes an honor to the practitioners of the healing art, and a blessing to the individuals concerned, as well as to our country, being a politico-economic advantage, by just so much as a self-supporter, and earner, is worth more than a pauper or a criminal.

It is perfectly well known to the members of this body and to all stomatologists, that beside the surgical diseases of the eyes, nose and teeth mentioned above, and certain affections of the ears growing out of neglected adenoids and dental arches, the larger proportion of all other diseased conditions, have their origin in something that has been taken in through the mouth, or manifest themselves very early by symptoms that appear in the oral cavity.

It is but fair, therefore, to ask your attention and aid, not only as citizens, but as medical specialists, in the effort to have the physical defects of the school children detected and remedied at the earliest possible moment.

New York City with a population of 4,000,000 and a budget of \$130,000,000 employs at present through the Department of Health, 100 physicians at \$100.00 per month, and 50 nurses at \$75.00 per month each for the examination of 800,000 registered pupils in the public and other schools.

Even with this inadequate force, the results have been so satisfactory that there is urgent demand for more physicians and nurses. There should be at least one physician and one nurse for each 2,000 children.

Our schools afford such exceptional opportunity to learn the health needs of the community, that they must not be neg-

lected. They also disclose important and perplexing questions, how best to remedy the evils found? In stating briefly New York's experience in this matter, I hope to receive from the discussion of this experience valuable suggestions which will help to improve the present condition and make it much more effective for good.

HISTORY.

Medical inspection was established in the schools of New York in 1897 for the purpose of protecting school children and the general public from communicable diseases, that either through the carelessness or ignorance of parents were allowed to be brought to school.

The early system employed 150 inspectors at \$30.00 per week to visit one or two schools and inspect all cases isolated by the teachers as possible sources of contagion, such as diphtheria, scarlet fever, measles, whooping cough, mumps, chicken pox and communicable diseases of the skin and hair, such as pediculosis, ringworm, favus, impetigo contagiosum, and of the eye such as trachoma and purulent conjunctivitis.

This system was unsatisfactory as its success depended on the ability and willingness of the teacher to detect disease. Many cases of scarlet fever, measles and diphtheria were subsequently found in the class room, the nature of whose illness was not even suspected by the teacher. A culture was taken to determine diphtheria in all cases that showed evidence of throat inflammation or nasal discharge. If the culture showed no Klebs-Loeffler bacilli, the inspector, who had excluded the child from school as a suspect, was obliged to go to the house and have the child return to school; if the culture was positive, the premises were placarded and the child quarantined. Other cases of major contagious diseases were seen by a diagnostician and held or dismissed. Latterly, the regular inspector decided as to measles. When many cases occurred in the same class, this class was examined daily and at times fumigation of the room was performed.

This system continued for five years and seemed to accomplish some good.

In the spring of 1901 a special commission of oculists examined the children in all sections of the city, to determine

the prevalence of trachoma. They reported that about 17 per cent. of the children examined had trachoma.

This report showed the need of a more thorough investigation of all children to learn the real number of trachema cases in the schools.

This requirement necessitated a change in the system. In tion of all children to learn the real number of trachoma cases spector was paid \$100 per month and required to spend more time in the schools. Each had special instruction in the diagnosis of trachoma.

The revised system included the old morning inspection and when this was finished the inspector returned to a school and made routine inspection. Routine inspection was the examination of every child in each class room in each school assigned to the inspector. Every child found with any contagious condition of the skin, scalp, eyes, or major contagious disease, was recorded on a class index card which showed when a child was found ill, when treated, when excluded and when re-admitted.

At first all conditions were excluded. Some of the schools were 50% depopulated and this caused the most strenuous opposition on the part of the educational authorities. The Department of Health was accused of interfering with the compulsory educational law, and was held responsible for illiteracy and truancy. Inasmuch as trachoma and pediculosis were persistent conditions, the charges were not unfounded.

The health authorities considered it safe to allow children who were regularly under treatment to continue in school.

In minor skin and eye diseases, finding that the directions of the private physician or dispensary were not intelligently carried out at home, or were utterly ignored, the department tried the experiment of having local treatment applied at school by a competent nurse.

This experiment was a success and warranted the appointment of many more nurses to supply those schools where the exclusions were heavy. With the nurses in schools 98% of the exclusions were at once stopped, as regular treatment was given at the school, and thus the requirements of the Department were complied with.

Instead of opposition to this work at school, it was most highly endorsed by teachers, principals, educators, parents and

children. Since this innovation many cities throughout the world have copied our nursing system as far as possible, up to the standard set by this city.

The cases are found and diagnosed by the medical inspector. The nurse gets the cases for treatment by referring to the class index card made out by the inspector. Trachoma is never treated by the nurse. All treatments are given according to the methods endorsed by the Department. The responsibility of keeping the children under inspection belongs to the nurse. When cases are considered cured, they are referred to the inspector and continued or terminated.

Cases refusing to get treatment are referred to the inspector and warned; persistent lack of evidence of treatment results in exclusion. An exclusion continued too long requires that the nurse visit the home and warn the parents. Parents have been fined for refusing or failing to provide proper treatment for the child so as to allow it to return to school.

For three months, ending December, 1903, we have the following table of exclusions:

Measles	18
Scarlet	13
Diphtheria	140
Pertussis	61
Mumps	9
Chicken pox	172
<hr/>	
Total major cases.....	413
Trachoma	12,647
Pediculosis.....	8,994
Skin diseases	661
Miscellaneous	1,823
<hr/>	
Total minor contagious	24,125

After treatment was established at school only the major cases needed to be excluded and therefore 24,125 minor cases were allowed to continue at school. This treatment at school therefore nullifies the charge that medical inspection of schools causes truancy and illiteracy.

In the schools to which the nurses are assigned, experience shows that little or no help may be expected from the parents, in getting and keeping the children under treatment; mindful that trachoma and pediculosis are such chronic conditions, it is

reasonable to suppose that the child would lose not one day from school, but rather one day a week for forty weeks, a school year. Limiting our discussion to these 24,000 exclusions, about one-third the school year being the time during which these exclusions were made, the economic value of treatment these minor contagions will be apparent from the following consideration.

It is estimated on a basis of 650,000 pupils that the per capita tax of educating children is about \$40.00 or 20 cents per day. Twenty-four thousand children excluded for one day puts a useless expenditure of \$4,800.00 on the city. If these fruitless exclusions were repeated or continued for ten days, the amount lost in actual money to the city would amount to 25% more than the amount now appropriated to the School Nursing Fund. When you add to the money loss the loss of the child's time and the probability of not being promoted, it is evident that this course of treatment prevents not only a useless money loss and an irreparable loss of mental progress to the child, but substitutes a system to prevent money loss and mental loss, while at the same time a campaign of hygienic education is instituted.

Further, the number of cures obtained diminishes the sources of contagion. The Department treats these conditions at school, and no one gainsays their authority to do so, inasmuch as the treatments are for contagious conditions. Professional opinion now coincides with this idea. The cardinal principle governing this work, is that the function of the Department is to protect the community against the individual; it must consider the child's school time as well as its health, and to accomplish both these important functions, it supplies the services of a competent school nurse. A census of all schools showed about 17,000 individuals afflicted with trachoma. In 1902 all these cases were compelled to get under treatment within three weeks after school opened. Where the greatest number existed, there the ability to provide private treatment was almost impossible. This great number thrown at one time on the clinics of the city, rather overwhelmed their services. Objection was made on the ground that contagious cases should not be allowed to come in such numbers; again, the eye surgeons had little time to grant certificates of treatment. The Department finally had to step in and establish two eye hospitals and dispensaries. All cases not under private treatment were referred to these places. Since the

establishment of these hospitals there have been performed 10,000 operations, and there have been 800,000 revisits for treatment since 1902.

Operations are performed under full anaesthesia and up to date there has not been a serious accident.

Two hospitals afford very inadequate means to treat all cases properly. The hospitals are situated at the extreme ends of the Borough of Manhattan and on the easterly side. Children in the middle section of the island, and those on the west side, lose much time going to and from these hospitals.

The proper remedy lies in the establishment of more eye hospitals and dispensaries under department control.

The hospitals are so co-related that where the proximity of the schools and hospitals is reasonable, all the advantages of the school treatment is had at the same time, that all the objections to department control is eliminated.

There is very little lack of disposition on the part of parents to have children treated if the facilities are at hand; where car fares have to be provided and time lost going, waiting and returning from clinics, it is no great wonder that there is neglect of treatment.

An investigation of 614 cases operated upon, two years after the operations, showed the following results:

Number operated upon	615
Number examined	251
Number cured	195
Number showing more or less trachoma.....	56
Number not found due to transfer or discharge from school	364
Percentage of cures	78%

For some years it was thought that the functions of the Department were more than the mere looking after contagious diseases. That something of an effective preventive work might be properly undertaken.

School vaccinations have been performed for a number of years. School vaccinators are assigned to this work; all children must show certificates of recent successful vaccination, be vaccinated by the inspector, or cease attendance at school.

The result of this rigorous rule is best exemplified by the following fact: since 1890 there have been in the old city of New York about 6,000 cases of smallpox. Two cases only have

occurred in school children attending public schools; one ten years old, the second fourteen years old, and neither was vaccinated since infancy, and they were both absent from school at the time of the school vaccinator's visit.

During the fall of 1904, seven oculists were appointed to test the vision of school children in all sections of the city. The following is a report of the result of this work:

Number examined	34,000
Number found defective	9,100

The parents of the children found defective were notified by card as to the presence of the defect of vision and advised to get treatment of it. A report compiled some months later showed as follows:

Number re-examined	7,221
Number who procured glasses.....	1,624
Number under treatment for glasses...	1,565
Number about to get glasses.....	574

Fifty per cent. followed the advise of the Department. Needless to say that a written notification to parents in the better sections was all that was necessary to get results and commendation of the good work of the Department.

Reports then came in from the teachers and principals commenting most favorably on the results of the work of the oculists. Particular stress was laid on the improved conduct and proficiency of the children in class studies since the adjustment of glasses.

Inasmuch as the eye tests were made in a private room, a plea was made to extend the work to include a complete physical examination. After months of consideration this was allowed. Many well-known specialists were consulted as to what points should be looked after and brought out, as well as the practical tests that should be used in order to insure correctness and uniformity. The proportion of children found defective was so large that the results were not willingly accepted; a special commission was selected to verify the reports. The usual result obtained in this instance; that is, the better qualified the examiner the greater the number he found defective.

Defects of the eyes, nose, throat, and teeth, excited discussion, and teachers reported that the children affected were backward in their school work.

This report instigated a new line of study.

The examinations were then limited to those children who showed lack of progress in school.

In one school there was a special class of 150 defectives. This class was composed of backward and incorrigibles and truants and so-called impossibles. The physical examination of these showed the following:

Number examined	150
Number defective	150
Number with defective vision.....	13
Number with adenoids, enlarged tonsils, or both	137

The examinations were made by an inspector who devoted his entire time to the study of the diseases of children.

Special effort was made during six months to get these children operated on. Parents were neglectful, and for one reason or another only 56 children were attended to. It was then thought justifiable to get information as to what scholastic results would be obtained if these children were operated on collectively.

Written consent was readily obtained from parents to perform the necessary operations. June 21, 1906, 81 children were operated upon by three specialists of Mt. Sinai Hospital. Six months later, 76 of these children were re-examined, and without exception they had all been promoted and were doing well in their advanced grades. Operations in the schools, whether fitting glasses or removing adenoids or tonsils, will not be sanctioned. The function of the Department is to find these defects; then notify the parents and use all moral force to have the work done by private physician or hospital.

The proper solution of the question and the one which will eradicate the abnormal conditions that exist at present, is for the educational authorities to require that all children who seek entrance to school be physically perfect before they are accepted as charges for the state to educate.

This will throw the responsibility on the parent at the psychological moment. They must consult the family physician and dentist, and obtain their certificates of health, this to be supervised by the inspector. The examination of vision and teeth must be continued as visual and dental defects increase as the child progresses in school.

At present only 50% of the parents follow the advice of the

Department of Health. In a school population of 800,000, with 30% of the children behind the class proper for their age, it is estimated that this 30% lose one year in every eight, it is therefore evident that this waste of money must be stopped.

The honest poor must be cared for. Shall the State pay a fee to the private physician and dentist for service rendered to the poor?

One thing is certain, as the Department now supervises vaccination without clash with the medical profession, so governmental supervision might be had over the physical well-being of school children in the interest of the State, the child, the parent, and the scientific private physician and dentist.

With the physical welfare of the future generation in view, physicians, statesmen and laity must endorse school inspection. Then all will have contributed to the improvement of the race and necessarily to a higher type of intellectual, moral and physical man.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A regular meeting of the Institute was held Tuesday evening, October 1st, 1907, at the Hotel St. Margaret, 129 West 47th street, New York City.

The President, Dr. S. E. Davenport, occupied the chair, and called the meeting to order.

The minutes of the last meeting were read and approved.

COMMUNICATIONS ON THEORY AND PRACTICE.

Dr. H. L. Wheeler:

In a recent number of the Journal of the American Medical Association, an article upon the "Bactericidal Value of Some Widely Advertised Antiseptics," by Drs. Verhoeff and Ellis, of Boston, attracted my attention, and I thought it might be of value to the members of the Institute to get a short resume of what they have done.

This article pointed out that if Hydrocele fluid is added in sufficient amount to the various antiseptic silver solutions, the bactericidal power is immediately destroyed. Thinking that this inhibitory action of serum in all probability held good in all other non-irritating antiseptics, these men decided to investigate. After

experimenting with certain of the commonly known proprietary antiseptics, choosing those that seemed representative, the following results were obtained:

Antiseptics acting alone in the strength specified, failed to kill the staphylococcus Aureus, after an exposure of over four hours:

Alkalol	100%
Chrystalline	100%
Alkathymol	100%
Glycothymoline	100%
Vaginal Antiseptic (Abbott's)	2.5%
Borol	50%
Cuprol	5%
Zinc sulpho carbolate	1%

The strength of the solution tested was in every case not less than that recommended as effective by the makers.

It was concluded that the above-named solutions were not more effective than a normal salt solution and not nearly so inexpensive.

The following antiseptics acting alone were more or less effective, but when mixed with an equal volume of Hydrocele fluid, failed to destroy the vitality of the staphylococcus pyogenes aureus after an exposure of over two hours:

Liquor Antisepticus	100%
Listerine	100%
Lysol	1%
Cresylone	1%
Trikersol	9-10%
Acetozone	1-1000%
Alphazone	1-1000%
Euthymol	100%

There were others not met with so often, where the antiseptic action required from five minutes to two hours.

While this is far from all the antiseptics, those named contain the active principles of all on the market, and so are representative. If we were to give our patient a prescription for the Liquor Antisepticus, U. S. Phar., we would doubtless secure a remedy the equal or superior of any proprietary article on the market, we could know exactly what we were prescribing, and the material is much less expensive than the proprietary article.

Dr. Merritt will give the formula for this prescription.

Some time ago, Dr. C. D. Cook, of Brooklyn, sent me some samples of Alphazone. I think it is a much better remedy to

work than the Acetozone. It keeps better, and there is no gas formation. Acetozone bottles in my case during the summer time nearly all exploded, whereas Alphazone is perfectly quiescent and compares favorably with Acetozone in its therapeutic qualities.

Dr. A. H. Merritt:

I would like to emphasize what Dr. Wheeler has said, namely: the importance of accuracy in our prescriptions. The preparation he mentioned can be obtained anywhere, and at considerably less expense than the proprietary articles.

The formula is as follows:

Liq. Antisepticus.

Boric Acid	20.00
Benzoic Acid	1.00
Thymol	1.00
Eucalyptol	0.25
Oil Peppermint	0.50
Oil Gaultheria	0.25
Oil Thyme	0.10
Alcohol	250.00
Water, qs.	1000.00

This makes a preparation slightly acid in reaction, it is pleasant to the taste and is a reasonably active germicide. It can be retailed with profit for about 50 cents for 16 ounces. Listerine, which it resembles, costs about 75 cents for 14 ounces. The patient has been saved expense and you have the added advantage of not using a proprietary article.

There are one or two other preparations given in the U. S. Dispensatory to which I would like to call attention. The first of these is Cataplasma Kaolini. This is a preparation similar to Antiphlogistine, is designed for external application, can be obtained anywhere, and has the advantage of being a standard preparation. If we are going to employ an analgesic, let us do so with a full knowledge of what we are prescribing, and not resort to the use of such proprietary preparations as antikamnia phenalgin, ammonol, etc. A standard preparation of this nature can now be obtained known as acetanlid compound containing acetanlid, 70 parts; bicarbonate of soda, 20 parts; citrate of caffeine, 10 parts. In its use one knows precisely what he is prescribing; the cost is about 35 cents per ounce instead of \$1.00, the cost of proprietary preparations of a similar nature. Acetphenetidin is now the official name of phenaectine and should be employed in

prescribing it. The patent on this drug expired about a year ago, at which time it was sold at wholesale for \$1.00 per ounce. It can now be obtained for less than half that amount.

In the new pharmacopoeia, the patent tinctures are now 10%. Tincture of aconite is now 10% instead of 35%. If in writing a prescription one wants the 35%, it must be specified.

It is incumbent upon us to employ standard preparations. Let us discourage the use of too many proprietary articles, which are more or less worthless, and impose not only extra expense upon our patients, but preparations which are often of inferior quality.

The President:

The subject of the evening is a very important one, and one which dentists know too little about. It will be presented by a gentleman who, always a student, has latterly become a teacher, and he is well fitted to appear as our essayist this evening.

The subject chosen is "A Discussion of the Common Tumors and Cysts of the Maxillæ," by Dr. Eugene H. Pool, of New York City. (For Dr. Pool's paper, see page 232.)

Dr. A. Ernest Gallant:

Mr. President, and members of the Institute:—The subject has been so well covered, that it seems to me I can only emphasize certain features from a surgical standpoint, rather than that of a pathologist. I have had other men do this work for me since I left college, but it has had a very refreshing influence on my mind to see these slides, although the subjects are somewhat unfamiliar. In other words, I know less about teeth than I do about jaws.

My experience in the matter of jaw tumors has been chiefly of the grosser variety, and largely seen at the Cancer Hospital, or as it is now known—the General Memorial—and mostly sarcoma or carcinoma. As the doctor said, the chief trouble is, we get the cases too late to be of much benefit, so that the excision of a tumor which has involved the whole of the maxilla and begins to extend through the nose and into the pharynx is not a favorable one for the surgeon or the patient. For that reason it is well for all of us to keep our eyes open and not delay.

About two years ago, a lady came to me and said her father had an ulcer in the roof of the mouth, that it had been scraped by a homeopathic surgeon of world-wide fame, and was being treated

as an ulcer. Gradually the condition was getting worse, and her father was complaining of difficulty in swallowing. With tears in his eyes, he begged me to operate. The man expressed it in this way: "I cannot lie down; if I do I shall die. I nearly choked to death the last two evenings." Somewhat reluctantly, I consented to operate, and did so. The tumor extended from the orbital plate down through the whole jaw, and even into the pharynx; I was not surprised that he could not swallow. He was a man of rather bad habits, alcoholic, and he died in forty-eight hours, for which reason the daughter accused me of killing her father, and refused to pay the bill. I had two good reasons for remembering the case.

There are many such sad cases, and it behooves us to carefully watch every ulcer of the mouth, and to notice how and where it grows. If we are in doubt, we ought not to hesitate to take out a piece, have some one examine it, and get some idea of what it really is.

Carcinoma of the jaw occurs usually in the later period of life and originates in the epithelium of the upper jaw. The features are somewhat different in sarcoma, which appear most frequently in the carious teeth of young adults; and not uncommonly are of the mixed variety.

At the time I was an interne at the hospital, Dr. Coley was making his first experiments with toxins and I have followed his work with considerable interest. Dr. Pool said some of these sarcomata are less malignant than others, which is true, and perhaps explains why some of Dr. Coley's cases of enormous sarcoma of the upper jaw and face and skull have been cured, while others have not responded at all to his injections. He has shown cured cases at the Academy of Medicine which are nothing short of miracles. There has been no doubt as to their nature, and those of us who examined the cases could not question the excellence of his results. The tumors had disappeared entirely, and it seemed like working a miracle.

Cases of dentigerous and other cysts of the jaw I do not recall. A gum boil or alveolar swelling of the face which I have had to open is perhaps all that I know or have seen in this line of work; so if I were to say anything about it, it would be, what I, like a schoolboy, had crammed for the occasion.

Unfortunately, I lost my hospital records, and have but a

faint recollection of certain cases. One of interest was a cyst which seemed to be connected with the jaw. The features were rather peculiar, and on opening it we found it to be ranula.

My own feeling about all these enlargements of the jaw has been that to get at it at once was the best thing. Any enlargement of the jaw has always seemed suspicious. I feel we ought to get a definite opinion as to its true nature. To think we may have sarcoma growing in the jaw, which within six months will kill the patient if we do not recognize it early enough, seems to me a condition that we ought to thoroughly investigate or have investigated, and determine what may be done. I have seen the jaw pretty well disintegrated by gummata, and it has always made me feel that I ought to put the patient on mixed treatment or hypodermic injections and anti-syphilitic measures. If a specimen is taken to the pathologist, it takes a long time to harden, and while waiting for it to harden it is a good thing to put the patient on mixed treatment. If the tumor should turn out to be a malignant growth, one has not lost much valuable time, as in the case I mentioned. Only six weeks prior, from the description of the daughter, and this was a slight or ulcer swelling in the roof of the mouth, and yet in six weeks, it had grown as large as a large orange, at least. Have the diagnosis made quickly, because if it should be of a malignant nature, the opportunity is lost.

The President:

Our brethren, the laryngologists and the rhinologists, meet with tumors and cysts of all sorts. Every day they have a view of the field so largely worked in by dentists, and surely the representative we have with us to-night, Dr. S. W. Thurber, will be able to give some of his experiences which will be useful to us.

Dr. S. W. Thurber:

With tumors situated in the antrum, it is always a question with me whether they are of a dentigerous or of an epithelial origin. The chronic, slow-growing non-malignant tumors are often not associated, as I can recall, with anything of the teeth proper. In tumors of the antrum, no symptoms will be seen until they are large enough to exert pressure, and by that time sarcoma of carcinoma will have invaded the pharynx or the cervical regions possibly. It is hard to get hold of them early enough to save the patient's life. They are almost always benign in young patients,

and malignant in patients who are from 35 to 60 years. It is almost impossible to eradicate them thoroughly. They have a tendency to recurrence. I recall a case sent to Roosevelt Hospital, where there was a very rapid recurrence, and the man died from the poison of absorption.

Dr. E. A. Bogue:

I was pleased to hear in the paper that was read, the reference to what we know as cold abscesses, that there is a distinct pronouncement as to these formations, and that pronouncement has not often been given. The line of demarcation between dental and surgical practice was aptly mentioned by Dr. Gallant, and we cannot fail to recognize that that mechanical calling of dentistry has progressed a long distance towards surgical practice. Per contra, the surgeon is recognizing that there is something between dentigerous cysts and sarcomatous growths—such a thing as a tumor to be recognized by dentists and successfully treated by them. We as dentists are accustomed to looking upon ulcerated or abscessed teeth as being perfectly explicable, and yet the causes which produce ulcerated or abscessed teeth also produce, when there is no pressure brought to bear externally, those cysts that are familiarly known as blind abscess,

The surgeon describes these cysts as being usually associated with carious teeth, by which we understand him to mean that the infection from an exposed pulp on an approximal surface, if you please, gradually creeps up the dental pulp until it affects the root and leads to periosteal and pericemental trouble.

I will call special attention to a point in diagnosis. A swelling occurs, resulting in an abscess; that abscess opens externally on the face. Such a case came to my knowledge wherein two, if not three surgeons were consulted as to excision. It was simply an abscessed tooth, but the abscess broke externally. The experienced dentist had but to put his finger under the lip and raise it, to find the attachment so distinct—the attachment between the abscess in the alveolus and the opening upon the surface of the face, that diagnosis was at once made.

I had another such case last winter. It was treated a year and a half by a local surgeon, and he made a great to-do about having the patient go into the hands of a dentist. It healed rapidly after the tooth was treated, and the scar remaining was small.

The distance between the general surgeon and us is only the distance between the outside of the face and the tooth, and it is hoped these meetings, wherein the brethren from the other side of the fence, who do us the honor to meet with us, will gradually approximate the distance until we shall be one.

Dr. A. H. Merritt:

The paper of the evening is so excellent that there is little but commendation to be said of it. It is so full of interest and covers so much that is of vital importance that a full appreciation of its value will not be had without careful study. In my remarks, I shall confine myself to a discussion of those neoplasms which are distinctly of dental origin—that most interesting group, the cystomata, of these the one most frequently met with in dental practice is the unilocular cyst. These are usually found under the roots of devitalized teeth, which have long been the subject of a sub-acute or chronic inflammation resulting in necrosis or erosion of their apices. I should be a little inclined to question whether they arise from what the essayist terms “the irritation of an ulcerated pulp” or that as a rule, a lesion such as caries of an adjacent tooth antedates them. I believe that in most instances the exciting cause is some infectious disturbance of the pericemental tissues usually induced by non-vital teeth. In those of small size a diagnosis is difficult to make until extraction has been practiced. Fortunately, they are usually of small size and give little trouble, though cases are reported where they attain considerable proportions, even to the filling of the entire maxillary sinus. They may be located in the alveolar process of either jaw, but as the essayist says, most often in the upper jaw and anterior to the bicuspid teeth.

A dentigerous cyst is a tumor associated with some aberration in the development of the teeth preventing normal eruption. Such teeth that pierce the gum, however little, are never productive cystic tumors.

They are most often found in connection with the permanent teeth, but very rarely with the deciduous. They may occur in either jaw and though the essayist says most often in the lower, I think a careful review of the literature on the subject will reveal the fact that they are quite as often located in the upper. in fact, some writers say more often. Sutton, who speaks of them as

Follicular Odontomes, says the walls of the cyst always contain calcific deposits, and that they rarely suppurate. While cases have been reported as occurring as late as sixty, the majority are under thirty. It may be said that the disease is essentially one of early life. Multilocular cysts may be described as an aggregation of small cysts and as a type of cystomata is rarely found in the mouth associated with the jaws. Becker, who has reported two seen by him, claims to have found but sixteen additional cases reported in surgical literature. The disease is associated with early life, a case having been reported in an infant six months old. They are located most frequently in the region of the bicusps and molars, and in most cases associated with non-vital teeth which have been the seat of long-continued irritation. In size about as large as a pea to an almond, though these also may attain a very considerable size. As the essayist says, they are usually located in the lower jaw. Some of the comparatively recent researches of Cryer upon the mandible may account for the multilocular character of these cysts and why they are more often found in the lower than in the upper jaw. He has shown the inferior dental canal to be cribiform in structure admitting of abundant communication between it and the cancellated structure within the body of the bone through which it passes and is, moreover, connected with the alveoli of the individual teeth. The trabecular-like nature of the portion of the bone permitting, as it does, the multiplication of the cysts may account for the greater frequency with which they are found in this region. These cysts as have been pointed out, epithelial in origin and this origin invests them with potential malignancy, a fact which must not be overlooked. Their comparatively benign character is, according to Marshall, due to the bony capsule which surrounds them, their somewhat scanty vascular supply and the especially marked tendency possessed by the epithelial cells lining the cysts to undergo colloid degeneration. In all these types of cystomata the prognosis may be said to be good providing that thorough operative measures have been instituted.

The importance of the last cannot be overestimated, their epithelial derivation should never be lost sight of, and every precaution taken to prevent a recurrence. All operations should be confined to the mouth except in those rare instances where resection of the jaw may be necessary.

Apropos of what Dr. Bogue has said, and in reference to the blind abscess, while they may simulate the cyst, they are histologically different. They may have many things in common to the casual observer, but their absolutely innocent nature differentiates them from the unilocular cyst.

One fact which we should keep distinctly in mind when we are brought face to face with the possible necessity for devitalizing a tooth, is that we are opening the door to possibilities which are too often overlooked.

The President:

General surgeons have their field; dentists have theirs. There are dentists who give a great deal of attention to oral surgery, and may be said perhaps to bridge the chasm. I think we have a good representative to-night in Dr. Schamberg.

Dr. Schamberg:

Mr. President and fellow-members:—I am more than pleased to speak on this topic of tumors of the mouth, for it offers an opportunity for an interchange of experiences between members of the dental and medical professions. Such papers as these ought to be encouraged and I believe that it would be well for our members to read papers of similar nature before medical societies.

No other part of the body offers greater possibilities of benefit from an interchange of ideas, than the mouth. This is largely due to the fact that diseases of the mouth are cared for by two professions. Medical men leave most of the cases of acute inflammatory swellings to the dentist, and the dentist in turn, entrusts to the medical men, the diagnosis and treatment of the various tumors that arise within the oral cavity. In consequence of this reciprocal dependence, mistaken diagnoses frequently occur. This is forcibly brought to my attention through cases that I have seen where major operations have been unnecessarily performed, by general surgeons and, on the other hand, where malignant growths have been temporized with, by dental practitioners, until they have become inoperable owing to their being looked upon merely as obstinate ulcerations. Those of us who work exclusively in the field of oral surgery, see such cases frequently, for we are, in a sense, on the border line between dentistry and surgery.

In dealing with tumefactions about the face, the first step is to determine whether the condition is an inflammatory swelling

brought about by an alveolar abscess, impacted molar, etc. This is not always an easy task. Only this evening did a patient appear at my office, with an impacted third molar which was causing the same distortion of the face as was present in a case of mandibular sarcoma, for whom I removed a large section of the jaw, one week ago. Cases of extensive osteomyelitis must first be differentiated from malignant growths of the jaw, for they frequently present a similar appearance. I have operated upon a number of cases of osteomyelitis where a complete curettement of the entire inner portion of the jaw was necessary, leaving but a shell of bone behind, to fill in with granulation tissue, the operation being performed as alluded to by Dr. Merritt, from within the mouth. An osteomyelitis, extending over a period of six months, or a year, might readily be mistaken for a tumor of malignant nature, which would naturally call for a more extensive and disfiguring operation. One of the most important aids in my practice, to an accurate diagnosis of these obscure cases, is the radiograph. Some of you doubtless recall the value of radiography, in the case of the encysted superior cuspid that I operated upon before the First District Dental Society, last year, at the Hospital for Ruptured and Crippled. I was glad to have present on that occasion, a number of prominent surgeons, who saw the evidence of the knowledge which was imparted by the radiograph and which impelled me to extend the bone cutting, until the tooth distinctly shown in the picture, was exposed and removed.

In regard to Dr. Pool's method of treating monolocular cysts, I believe that better and more prompt results will follow the curettement of the cystic membrane, though I realize that his method may likewise be successful owing to the wonderful recuperative power of a part, when thorough drainage is established.

There is a great tendency on the part of many practitioners to overlook the possibility of initial lesions of syphilis appearing in the mouth. I have seen several cases of extra-genital chancres about the mouth, acquired in an innocent way by persons who never suspected the trouble, nor were they apprised of the fact, and some of them contemplated operation upon the lesion believing the condition to be cancer. There is oftentimes a marked similarity of appearance between an incipient eptheleomia and a chancre when these lesions appear upon the mucous membrane of the mouth and lips.

It is important that an early diagnosis be made of all malignant growths about the mouth, for in this region they develop rapidly and terminate fatally unless operated upon with thoroughness during their incipency. Within the past few weeks I was called upon to diagnose several cases of buccal carcinoma which had passed to the inoperable stage through failure of those in attendance upon the cases to recognize the character of lesion they were treating. The nature of these lesions was evident to me upon sight, for they presented the characteristic cauliflower-like formation which, when once seen about a deep irregular ulcer, leaves a lasting impression. In all cases, however, it is well to fortify the diagnosis by a microscopical examination of a portion removed from the tumor.

Acute inflammatory swellings usually reach a crisis within a week or ten days. Anything that persists beyond that time should be looked upon as a growth that demands closest scrutiny. If the tumefaction affects the outline of the jaw itself, and does not appear to involve the soft tissue, a radiograph is indicated to determine the true nature of the inner structure of the bone. It will assist in differentiating between encysted teeth, multilocular cysts, osteomyelitis, and sarcoma.

Tumors arising on the surface demand microscopical examinations whether they be small epuli or extensive growths, for most malignant lesions begin as the benign ones do, in a small way. The microscope offers the surest means of determining the true character of a tumor.

Dr. Pool has shown many interesting pictures of epuli. I believe that all epuli are deep-seated in origin and that they come from either the periosteum or periodontal membrane. In most all that I have removed the base was found to be attached to the periosteal or periodontal membrane, so that I usually remove the adjacent teeth.

I feel that I might talk for hours upon this subject, it is so intensely interesting to me; but I fear it would exhaust you. I am heartily in accord with the remarks of Dr. Bogue and Dr. Merritt. It is nothing to Dr. Pool's discredit to have made what I deem a slight error in connection with monolocular cysts. He is to be congratulated on having made such a complete study of the tumors of the mouth. If all medical practitioners were to make as careful an observation of the diseases of the mouth and

all dental practitioners would give more serious attention to the diagnosis of oral tumors in their early stages, fewer mistakes would be made.

Dr. Pool—

There have been a number of jokes on the surgeons to-night, but none as yet on the dentists. I do not think, however, that I shall bring up any.

In regard to the treatment of sarcoma, as Dr. Gallant suggested, Coley's method could be used, but it should, I think, be considered only as a last resort.

In suspected syphilitic lesions, one should, of course, as has been suggested, resort to anti-syphilitic treatment.

Although I am not a pathologist, I do not think it is true that any marked delay will attend the taking of a portion of suspected tumor tissue and sending it to a pathologist for examination. A few hours, or at the most, a very few days, is all that will be required for a report.

In regard to the cause of the unilocular cysts and the most frequent site of occurrence of dentigerous cysts, I will not draw you into an argument at this time of night. Authorities differ and I think we might bring about a lengthy discussion on those subjects.

Certain conditions have been alluded to by the speakers which were not taken up in my paper. Dr. Gallant referred to ranulae. These, of course, are retention cysts in the floor of the mouth, arising from the glands of Brandin—Nuhn and other glands. The diagnosis is not attended with difficulty. Dr. Schamberg, in his excellent remarks, referred to epithelioma of the tongue, which calls to my mind a case I saw last year. It was sent to me as a broken down gumma by an excellent authority. The clinical features all pointed to gumma, yet microscopic sections showed it to be a epithelioma. I urged operation and was prepared to do it, when the man changed his mind and left the hospital. Two or three months later, he came back and urged me to operate. At that time he was greatly emaciated, the tongue was extensively ulcerated and the cervical lymph nodes were much enlarged. Operation was out of the question. He had gone to a hospital where the doctor told him there was not a possibility of the condition being a cancer. He did not take a section for

microscopic examination, but put the patient on anti-syphilitic treatment and watched the lesion extend. Nevertheless, I will agree with Dr. Schamberg that one can, as a rule, make a correct diagnosis by the history and clinical signs, yet in most cases I do not think it safe to bank upon one's ability to do so. In general the diagnosis should be verified by the microscope. I thank you very much for kind attention.

The President:

The Institute stands under obligation to our essayist this evening, and wishes, through its President, to present its thanks and its acknowledgement for the thorough study of this subject, and for its presentation in the complete form which Dr. Pool has used. We wish him to accept our thanks.

Dr. Gallant and Dr. Thurber are also very kind to us, and we thank them.

Adjourned.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A regular meeting of the Institute was held Friday evening, November 8th, 1907, at the St. Margaret Hotel, No. 129 West 47th Street, New York City. The President, Dr. S. E. Davenport, occupied the chair.

The minutes of the previous meeting were read and approved.

The President:

It is with sorrow the President announces the death of Dr. Frederick Bradley, of Newport, R. I., who has been a valued member of this organization for a number of years. The Board of Directors has requested Dr. E. A. Bogue to present at this meeting a minute upon the life and work of Dr. Bradley, which the Secretary will now read.

One of our Associate Members, Dr. Frederick Bradley, of Newport, passed away on October 23rd.

Dr. Bradley was a high minded professional man, and a useful citizen, serving on the School Committee of Newport for six years and in the Dental Department of Harvard University for nearly thirteen years.

He had been President of both the Horticultural and the

Philharmonic Societies of Newport, and in many ways had endeared himself to his profession, and to his fellow-citizens.

We mourn his loss, and respectfully offer to his family this token of our appreciation of him and our sympathy with them.

On motion, the minute of regret was adopted and the President stated that it would become a part of the proceedings, a copy being sent to Dr. Bradley's family.

The President:

A prominent teacher in a dental school, and an editor of one of our magazines, in an editorial recently published makes use of the following:

"As in a majority of instances dental disorders have their inception in childhood, it is evident that preventive measures must begin with early dentition, and that they can be most effectively applied through the periodical inspection of and care for, the teeth of children in the public schools. Intelligent and persistent effort to secure this end is the most important duty now confronting the dental profession."

It is in the air, gentlemen, this subject which has most wisely been chosen by our Executive Committee, and no doubt we all feel that there is no more important subject than the one which we are to consider to-night.

We are very fortunate in having for our essayist a gentleman who may indeed be called an expert, who has for a long time given close attention to this question of the physical welfare of school children. He has been invited to speak before societies pretty well over this country, and also in Europe and it is most kind of him to appear before us to-night. The subject chosen is "The Physical Defects of School Children," and your President takes great pleasure in presenting Dr. John J. Cronin, of the New York Board of Health.

(For Dr. Cronin's paper, see page 272.)

Dr. Cronin:

While I do not know much about teeth, I know a child should not have bad teeth, and if any systematic or scientific work is to be done the more complete it can be, the better, because there will be a lot of specialists reviewing your records and who are looking for those defects in their particular line and would criticise

us for neglecting what each considers the most important thing if it were omitted.

Many physicians say they are only temporary teeth, and they would not have their own children's treated. Not one of the above class to whom I put the question as to when the first permanent teeth erupt, could answer the question; so you may know what condition of ignorance in regard to the teeth exists in this beautiful city of ours. Since I have been acquainted with Dr. Bogue, I have learned more than I ever knew before about teeth and dental arches.

I have some reports showing the almost complete unanimity of opinion existing between the inspector and the physician in charge; and the higher you go in the social scale of our professions, the more complete is the agreement. Too many people presume that a defect is not a defect until it becomes an incurable disease or condition.

It is unjust to allow children to attend school without finding out whether they are physically able to do so.

Here is the picture of a boy who has forty-eight teeth!

There was some difficulty in regard to taking care of the children, on account of the fear of interfering with parental responsibility. Some of those people thought if the tonsils were removed by an American physician, the child would never be able to speak anything but English thereafter. This illustrates the kind of parental responsibility that would be undermined.

One child eight years old was not able to articulate and four days after the operation for the removal of adenoids the child began to articulate and now I think he is able to speak fairly well.

Every child committed to the New York Juvenile Asylum is immediately referred by Dr. Bernstein to the dentist to have his teeth attended to, and they are all taught the use of the tooth brush.

We all know that if one cannot breathe properly through the nose, there will positively be deformity of the chest.

The President:

Many of the gentlemen who have favored us with their presence are working along similar lines with Dr. Cronin. The city of Montclair has been doing considerable in that way. We expected two gentlemen from there, but Dr. Newton, our old friend,

who has favored us on a number of occasions, was prevented by professional duties, from coming. The President will call upon Dr. Noble.

Dr. W. C. Noble, of Montclair, N. J.:

It has afforded me great pleasure to come here to-night and listen to Dr. Cronin's exceedingly interesting and able paper. We in Montclair, as perhaps most of you know, consider that we are in the fore in every good work. You who are acquainted with the subject know, for instance, our attitude in regard to pure milk. We also have been trying to do something in the way of medical inspection in our public schools. We are quite young in this work; we have but two and a half years' experience as against our lecturer's ten, yet we feel that even in so short a time, we have attained results to be proud of. We were somewhat handicapped at the beginning by the lack of encouragement and support on the part of our Board of Education. They could not understand the necessity, in such a community as ours, of inaugurating any movement of the kind. You will, perhaps, understand the reason for their attitude when I say that our community is rather unique.

The vast majority of our pupils come from a very different class of society from those of the East Side in New York—the quarter, I should judge, from which most of Dr. Cronin's cases have been drawn.

We, nevertheless, do have in Montclair a class of children which, though at present comparatively few in number, is going to make the school inspection of great importance. Since we started in with this work we have ascertained and destroyed incipient epidemics of scarlet fever, measles and diphtheria. Three distinct epidemics of scarlet fever were nipped in the bud, and one epidemic of diphtheria. We have in our public schools, not 800,000 as you have, but about 3,250 pupils. As a result of the medical inspection during the past year, about six per cent, were excluded because of either infectious or contagious diseases. We have the same general run of conditions prevalent in Montclair that you have here in New York. We find the post-nasal growths, the enlarged tonsils and the defective vision. In regard to the two first mentioned conditions, we have noted a very interesting fact.

Many children examined at the general inspection a year ago, were found with greatly enlarged tonsils. At the last recent general inspection, the same children were found to have absolutely normal tonsils, and when asked if an operation had been performed, said that there had not. Such instances occurred in several school districts, and in my opinion, show facts worthy of consideration. If hypertrophied tonsils—very large ones—can be reduced by natural means to a normal condition in twelve months, is it always necessary to operate?

A few days ago, I saw an interesting case. A boy was reported by his teacher, as being a persistent mouth-breather. On examination, his condition was found to be typical of adenoidal growths. The question was asked if anything had been done. He said, "My adenoids were taken out last year." Yet there was every indication of a post-nasal growth, although it was said to have been removed the year before, by one of our leading local surgeons. As the boy is a member of one of the best families in the town, there is no reason for doubting his word. And his case is not the only one of its kind, that has come to our notice. Now what is the explanation of such a condition? Is it due to a partial removal of the adenoids, or to new growth?

Defective vision, is the most common of the eye-conditions that we have noted, although there have also been very many cases of the various inflammations—pink-eye, granulated lids, etc.; and a few cases of genuine trachoma.

It was only in 1902 that Montclair physicians had their first experience with trachoma. I recall seeing a case at that time in my clinic at the Mountainside Hospital, and a few days later spoke of it to one of our local physicians. He was much interested, and wanted to know just what trachoma really was. It is not surprising that he asked, because in our country the disease has been so rare that but few physicians have ever met with it. Here in New York it has been found necessary to give the inspectors special instruction along diagnostic lines in regard to it—how to ascertain, and how to differentiate it from other eye conditions.

In regard to the teeth, we have not yet reached the point where our Common Council is ready to vote an appropriation for a dental inspector; but the time is coming when it will need to be done. Poor teeth are seen continually by the inspectors.

The reports are sent home to the parents, and very often nothing is done.

What, then, shall we do to correct these conditions? Educate the parents? That we are striving to do. Our system in Montclair is very similar to the New York system—in fact, I think it was patterned after the system in vogue here. We have a class index card similar to the one in use in the New York public schools. That index card follows the pupil from the kindergarten, through all the grades of the primary and grammar school, and the high school, giving a complete physical history of the child. We have a report card similar to the one I hold in my hand. It is filled out by the teacher, and is sent to the inspector on his visiting the school. We do not have daily visitations, but we do have two visitations a week. If suspicious cases are seen by the teacher during the week, the inspector is sent for at once, to examine the child. If it is a case calling for exclusion, the pupil is excluded. An exclusion card is made out similar to this one, which reads:

John Smith. Age, 12. Address.....
 Central Primary School. Grade.....Class.....
 is excluded from school because of having symptoms of (or has)
disease.

The card is signed by the medical inspector, and instead of being sent as a postal, is enclosed in a sealed envelope and given to the child to take home. If, after a reasonable length of time, the child does not return to school, our so-called visiting officer ascertains the reason. If it is because nothing has been done, then the parent is warned. If still nothing is done, a second warning goes from the visiting officer, which is usually effective, and something is either done or the child is sent to the school for care there. We have no nurse connected with our work yet, but it is one of the things we are looking forward to. The matter has been discussed by our Board, and probably in another year we shall have a visiting nurse who will visit all the schools of our town in connection with the visiting inspector.

We have five inspectors engaged in this work, and the public schools are divided among them. It is hoped that as the work grows, and as our citizens become better acquainted with what we are doing, and realize its importance to the community, we

shall have plenty of financial support for its full and complete continuance.

In looking over some of the causes for exclusion during the past year, I find that 33 out of a total of 192 exclusions were cases of tonsilitis, 7 cases of measles, 18 cases of true scarlet fever and 19 cases of suspected; 33 cases of contagious eye diseases—trachoma and purulent conjunctivitis—37 cases of vermin and the rest scattering. There were 1,768 male pupils and 1,781 female pupils examined. Of these, 2,788 were reported by the inspectors as negative, 569 referred either to parents, guardians or physicians and 192 excluded.

I am sure all will agree with me as to the importance of this medical inspection work. No one could sit here and listen to what the lecturer has said to-night without realizing perhaps as never before the prime importance of this work to the community in which we live.

Dr. W. Sohier Bryant:

Mr. Chairman and Gentlemen:—I wish to make my thanks, especially to Dr. Bogue, for the pleasure of being here at this very profitable meeting. Dr. Cronin's work speaks for itself, and his success justifies his enthusiasm. I have been one of his lowest assistants in a way, as physician for the nose and throat at the Presbyterian Hospital, and I know how carefully his instructions are carried out. Very few children pass through the net who should have their defects attended to in the specialty in which I am interested.

The chairman introduced the subject by referring to the question of charitable work on the teeth of children. Ever since I have been working in clinics, for the last twenty years, I have found it very difficult to get charity work done in dentistry, and I think it is the only thing which is lacking to make the proper attention for the care of school children. We, as rhinologists and otologists, and you as stomatologists, stand on a common footing on the floor of the nose, and what either of us does in the way of regulating helps the other. We are on the two sides of the floor, and we cannot improve the floor very much without also regulating the dependent structures, the nasal septum and the alveolar processes.

As far as the ethical and economic value of correction of

structural defects of the head is concerned, I do not think that it can be over-estimated. I think these defects are more important than all the other defects of the body put together—in fact, several times more important. They all have a direct bearing on the superstructure, that is, the brain. The importance of having sufficient air and sufficient, properly masticated food are also great; but of chief importance is the prevention of the baneful effect on the highest of all structures, the brain, from imperfect development of the superior maxillary bones.

Dr. Walter Stewart Cornell, of Philadelphia:

In a few minutes one can cover very little of this large subject, and I will confine myself to a few remarks on the prevalence of these defects, their relation to poor scholarship, and the attitude of teachers, parents and the profession towards this question. So far as the prevalence of the defects in public school work is concerned the examination of hundreds of thousands of children is necessary to get a series which is of some use, and if one picks up a report of some conference—as I saw the conference of sanitary officers, in Rochester, recently—it will be found filled with the most amazing statistics of work done by inexperienced persons, and the percentage of general defects of children vary so much that even the layman is taken aback by the incoherence of the statements he finds there. It tends to throw discredit on the work, when such a lack of uniformity exists.

As to the figures of larger cities, I remember hearing Dr. Darlington state that 49% of the children showed some defect.

I understand that that 49%, in looking over the examination cards, was not always a defect that needed sending a notice to the parent. We place the estimate at 36% in Philadelphia. I think between 34% and 35%, from my personal work, is about the right percentage. About 19% really demand attention. I think Dr. Hyslop of England, puts it at that figure. The difference between 19% and 49% represents the personal judgment of the man who is doing the work as regards the necessity of treatment for minor defects.

The prevalence of eye strain I think is set at 29% or 30% here in New York, and we are safe in putting it at that number. In London, Sir Shivley Murphey gives the percentage as 24, estimated by oculists. His report agrees with the figures of New

York, 29%, and Philadelphia, 28%, and gives the number of children who have perfect vision, and two-third, three-fourth and one-half vision very accurately.

In estimating the prevalence of physical defect, and its relation to mental development, the three classes of children to study would be the feeble-minded, the atypical or exceptional children which are in the public schools now in special classes, and the ordinary intelligent children. In the imbecile class is the child who has a poorly developed brain, who has practically no mentality. He shambles in his gait, he has defective vision, due perhaps to a cerebral hemorrhage at the time of birth, and usually his head is not perfectly formed. I visited a backward class this afternoon, and the teacher said she had twenty defective children. At a previous time, when she had eighteen, she had a record of the nose and throat defects. Every one had those, three had eye defects and eight had impaired hearing.

As regards the ordinary school child, I made two or three studies in the last year. I examined about 1,000 children in Philadelphia. We have a card on which the physical record is on one side and the scholastic record on the other. I then assorted them into three groups according to whether they had good, fair or defective vision. Those with good vision had an average record of 76 out of 100, those with fair vision had an average of 73, and those who had poor vision made an average of 69. Six or seven points does not seem much, but when seventy is considered a passing average, you will see what it means.

I made another test, sorting out those that had physical defects of any kind, and those that had none. In every school the result was the same. The children who were normal showed the highest mark, and the defective children the lowest. In one school where the difference was the highest, it was 8%.

A study of the term mark in the nose and throat cases showed an average of 67.

The eye, the nose, and throat, and the deaf most of all, produce a discount on the teacher's efforts of from two to eight or nine per cent., and no effort of education can get by that. That is where the physician comes in.

As to dental defects, they are not so prevalent among the better classes, but after receiving this invitation to come here and speak, I paid some attention to the statistics. I examined six-

teen children in a poor neighborhood; eight had such poor teeth that I had to send recommendations to the parents, and going to another school nearby, I sent ten notices out of seventy-five to parents. It represented the number with very badly decayed teeth.

I wish to thank Dr. Bogue for inspiring me with the definite idea of the relationship of nose and throat defects to the development of the teeth. As a general practitioner, I had gone into the specialties because of official school work. It was due to a paper of his that I became awakened. Recently I saw a striking case of combined adenoids and irregular teeth. A friend of mine, a dentist, told me he had been treating this girl, who was about 12 years old, of good social station, and that she pushed off the regulating apparatus every time it hurt her. I dined one evening at her father's house, noticed that she could not pronounce her n's or m's, and remarked at once that she had adenoids. It was a beautiful case—adenoids as big as a grape back there that caused the trouble. In such cases the dentist and the physician should be called in together, as the two defects are related to each other, and it takes the two to remove the cause, as Dr. Bogue says.

In the medical school where I endeavor to teach anatomy to students, I assure you I have laid due stress on the question of the development of the air sinus in the superior maxillary bone, because after Dr. Bogue telling about the twelve apostles whose picture displayed prognathous jaws, I felt every physician should realize the importance of their development.

As to the establishment of free dental dispensaries, you must pay your men. You cannot expect a physician, an oculist or a dental surgeon to put his time in on a lot of dirty children with nothing interesting about them, without giving him adequate compensation therefor. The young ophthalmic assistant goes in the refracting room and does all the hard work, and the professor lays down the law and picks out the interesting cases for himself. Perhaps it is not so in dentistry. You may get a man once in a while who is so enthusiastic that he will work like a slave for nothing, but he is the exception, and you cannot have routine work well done without making the laborer worthy of his hire and paying him for that work.

The President:

We owe our thanks to Dr. Kimball, through whose thoughtfulness we are able to hear from a gentleman who has given perhaps more attention to the dental defects of children than the gentlemen who have already spoken—Dr. Haven Emerson, visiting physician at Sea Breeze Hospital, Coney Island.

Dr. Haven Emerson:

From June to September, 1907, I had the opportunity of examining the teeth of 2,301 applicants for the Sea Breeze Health Home at Coney Island under the auspices of the New York Association for Improving the Condition of the Poor. In each instance the mouth was examined in the usual manner with a tongue depressor, for evidences of contagious disease. The moment of this examination was used to note the number of teeth decayed, as well as to count those lost, and the number replaced by artificial teeth. The data acquired in this manner is the basis of this report.

It is to be noted that none of these people, adults or children, were suffering from any acute diseases. The applicants were mothers and daughters over fifteen years, and children of both sexes from three weeks to 15 years.

They had been invited to apply for a two weeks' stay at Sea Breeze, because they were known to need an outing, often owing to sickness during the previous winter, but in the majority of cases because their general health was failing, or they were giving evidence of lowered vitality, in various forms of malnutrition, anaemia and general debility. As they presented themselves for examination, they appeared rather above the poorest class of tenement dwellers. None had suffered from hunger and all were sufficiently clothed.

The rapidity with which the examinations were made, and the lack of technical skill in observing dental defects on the part of the examiner, are responsible for at least a very conservative estimate. Only such cavities or distinct evidences of destructive decay in a tooth as were plainly visible on direct inspection were taken in the count as decayed teeth.

Of the 2,301 applicants examined:

(A) 189 were infants under 1 year.

(B) 1,478 were children from 1 to 15 years.

(C) 634 were women and girls over 15 years.

B.

Of the 1,478 children 278 or 18.8% had no defective teeth, leaving 1,200 or 81.2%.

Among these 1,200 children I found 5,996 decayed teeth, almost five apiece, or an average of 4.7 decayed teeth for each one of the 1,478 examined.

C.

Of the 634 applicants over 15 years old, only 19 or 3% had no defective teeth, leaving 615 or 97% in whom 4,022 teeth were found to be decayed. This makes an average of 6.5 decayed teeth for each of the 634 examined. There were also found in this group, 1,655 teeth missing, and, in addition, 1,444 artificial teeth, making a total of teeth which had been removed presumably for advanced caries of 3,099 or an average of 4.8 for each one of the 634. Combining the numbers of those removed and those at present decayed, we have an average of 11.3 teeth decayed or 28.8% of all the teeth of 634 adults severely enough diseased to be more or less permanently ineffective. It also appears that 7.2% of the entire number of teeth of these 634 adults were replaced by artificial teeth. Inquiry elicited the fact that only in the rarest instances were the tooth brush or even mouth rinsing used, and as far as I could find out no means of cleaning the mouth and teeth were considered to be worth while until the permanent teeth had appeared.

To those who are familiar with the conditions of patients who frequent the public medical dispensaries, these figures will probably seem moderate, and I do not doubt that an examination by a dentist would reveal a material increase in the number of carious teeth. These figures are, however, sufficiently striking to emphasize my point, that this defect in the teeth of the tenement dwellers must be corrected before we, as physicians, can remedy some of the serious evils of health and development these people suffer from. I refer especially to the errors in digestion which originate in incomplete mastication and salivary digestion, with constipation as an almost universal accompaniment. The advanced results appear as malnutrition, under-development and lowered general resistance to infectious disease.

That mouth infections involving the fauces and tonsils are

more common in individuals with many carious teeth, I have no figures to prove; but the condition of the soft tissues which come in contact with carious teeth, at the gum margin or upon the buccal or lingual mucuous membranes, certainly suggests that there is a pretty constant source of septic or putrefactive bacteria in the crypts of the decayed teeth.

Wadsworth (*Journal of Infectious Diseases*, Vol. III. No. 5, Oct., 1906) says: "From the hygienic standpoint, the secretions of the mouth constitute the chief, if not the only source, of respiratory infection, and the infectious material is transferred from one person to another in some instances through the air, as from sneezing or coughing, but to a much larger and more serious extent by personal contact, or the use in common of the various accessories of life."

I venture to suggest that one way in which the prevalence and increasing existence of respiratory disease may be checked, will be by a prevention and correction of dental diseases, supplemented by the use of bland alcoholic solutions as mouth washes, which Wadsworth found to be the only mouth disinfectants of practical value.

If you are not familiar with that article, it is one of the most effective and perfectly stated articles I know, concerning mouth infection. He studied all the commoner antiseptic mouth washes, and found none of them had any effect whatever in diminishing the number or delaying the growth of pathogenic bacteria, except those that contained 30% alcohol, with glycerine, normal salt solution and bicarbonate of soda.

To summarize my ideas upon this subject I may say that carious teeth are so numerous among the tenement population of New York, and the manifest results of digestive disturbances caused thereby are so far reaching in their effect upon the welfare of the individual and the State, and the danger of communication of infectious disease is so much increased by the presence of unclean mouths, that prophylaxis and treatment of decayed teeth should be undertaken on a comprehensive scale as a public necessity.

The economics of public hygiene occasionally demand considerable present burdens to avoid certain increasing difficulties and expenses in the future.

I believe the dentists of this city would be doing a work of

great value to the public health, a work which they alone can do, and a work of immediate importance, if they would undertake the betterment of existing conditions in the present sufferers from decaying teeth, and so spread the knowledge of the needs and means of caring for the teeth, that the children of the poor will not continue to grow up under a handicap, which, aside from the physical suffering often entailed, stunts their mental and bodily development, and renders them alike disseminators of infection, and fit subjects for infectious disease.

I assure you the time is coming when dispensary work of patients will be paid for. The public demands not charity but skill. Skill cannot be had for the asking, and physicians will be paid for dispensary work. Dental work cannot be had unless paid for. The physician who tries to treat gastric cases or malnutrition cases without seeing that the teeth are properly treated first, will lose ground with the patients. Our dispensaries must be equipped with a dental room. I urge your co-operation in the matter of having districts set apart in New York City for the treatment of cases, so that a patient will not have to come from Harlem to Bellevue, or Greenpoint to Bellevue, or Sandy Hook to Harlem, but may go to the nearest dispensary in his district to get medical care—not pills and potions, but intelligent instruction as to diet and clean mouths.

The President:

This question is so broad and far-reaching, that it has enlisted the interest of the clergy. We would like to hear what the Rev. Dr. Travis has to say to us about it.

Rev. Dr. Travis:

In speaking to you this evening, I can speak not with the special knowledge you have, but only with the knowledge of a layman; yet it is a singular fact and a singular proof of the universal touch—the universal way in which one line of thought reaches into all other departments, that this matter of the teeth should come in contact with my department in a very peculiar way—through the criminal way. In my college days, I became interested in the theories of Lombroso with regard to criminals—that if a child were born with such instincts, with the present conditions of society he became a criminal; and I went into this study to investigate his claims. With my imperfect training, as

the thought of the evening turns on teeth, I will speak with all diffidence in the world on the matter of teeth, as I found them in this connection.

Dr. Tarnowskaia made the claim that she found women thieves defective in dentition and development of the bony palate. Lombroso, Ferri, Benedict and others say the born criminal is particularly defective in the bony formations of the head, including the bony palate. Thus we find defective bony palate and defective dentition named as stigmata of certain kinds of criminality. It seemed to me then, that in order to test the validity of those stigmata, one ought to examine for these marks in other realms than that of criminality, and I went into the insane asylum to make an examination of the bony palate and the teeth, with this result: The defects in dentition and bony palates were greater among the insane than Lombroso claimed for his criminals. Among the normal population, I found a diminution of the abnormalities of the bony palate and the teeth. Then it became my object to test these results with regard to the criminals in a new country, for you can see at once that Italy, being a type of old civilization, with social competition long going on to form classes—the aristocracy, the working class, the pauper class—it would follow that criminals also would approximate more closely to a type or class in an old civilization than in a new one; and it seemed to me before Lombroso's theories could be accepted, they should be tested in a new civilization where social conditions were mobile.

So I went into the penal institutions in New England, and found that, advancing from the institution containing the lighter offender to the sterner, from the younger offender to the older—there was a steady increase in the abnormality of the bony palate as well as other stigmata. In the normal population I found less stigmata. There was a fairly steady increase of stigmata from childhood to manhood in the normal population from the younger to older offender and a larger number of stigmata among the insane than among the criminals. It, therefore, seems to me Lombroso's theories could not be held as accurate; that these characteristics were of crime alone, for these stigmata were of degeneracy and not of crime. In order to tell whether a person was criminal from his physique, one would have to enter the psychological realm.

I met Dr. Bogue at this stage, and became fascinated with his work of cure, and the words of Dr. Cronin to-night have come to me with much force. It has been my hope that there would be some help, and I am surer and surer that there is a method of preventing much physiological crime. Truly I think you have hit on a right way. I have seen the changes Dr. Bogue has wrought in head formation, and if the abnormality of the instinctive criminal depends on abnormalities of head formation, I am more and more convinced that if those offenders are caught young enough, their whole morals and manners can be affected for the better.

Dr. James Porter Fiske:

It has been a great pleasure to be here to-night and listen to the paper and the discussion. It is truly wonderful what these disturbances of the teeth are responsible for. Dr. Cronin speaks of two classes—the communicable and the non-communicable, and we are, I think, more interested in the non-communicable known as the physical defects of school children. I am sure you will be interested in this little extract of the report of Dr. Dukes, medical officer of Rugby which is one of the first schools in England, and is attended by the better class of children. Out of 1,000 unselected cases, their ages varying from 13 to 15 years, he found the following: antero-posterior curvature of the spine, 1 case; lateral curvature, 445 cases; pigeon breast, 126; bow-legs, 45; knock-knees, 526; flat feet, 325; hammer toes, 5; undescended testicle, 9. Defective hearing was noted in 34 cases. Defective sight was found as follows: Hypermetropia, 40; myopia, 128; astigmatism, 27; color blindness, 12. Heart disease was found in 10 cases—8 mitral, 1 aortic and 1 irregular action. Respiration was nasal in 88 cases and oral in 112 cases. Oral respiration was usually due to a very short upper lip, which prevented the mouth from being closed, or to adenoids. In many cases, an operation had already been performed for the latter. The teeth were well cared for in 943, neglected in 57. A curiously large number of boys, 437, suffered from chilblains. Incontinence of urine existed in 28 cases, of which 2 were diurnal and 26 nocturnal. Functional albuminaria was found in 157 and a trace of sugar in the urine in 3. In no case examined at maturity was the albuminaria found to persist.

In a large number of cases the teeth were well cared for, as you see, but then they represent the better class of children.

In caring for the defective school children, a good deal has been done by the Board of Education. You heard to-night what the Board of Health has been doing, and work has been done besides, through private philanthropy and private societies.

I should like to mention the work done by the Guild for Crippled Children in establishing schools throughout this city. Four schools have been established, one in Harlem, two on the West Side and one on the lower East Side. The crippled children are cared for in this way: They are taken to the schools in the morning in a wagonette, kept there throughout the day, provided with a hot luncheon and in the afternoon are sent home in the wagonette. Manual training is an important part of the work. They are taught basketry, turned woodwork, leather work and sewing. There is one school on West 57th street, and there we have a staff of physicians which is very representative. We have eye men, ear men and orthopedic men, so the various defects can be treated.

I would like to call attention to the "Committee on the Physical Welfare of School Children," which is closely allied to the Charities Association, and which has given recommendations of real value as to how we shall meet this problem and do the greatest good to the large number of physical defectives.

Mr. Allen, the secretary of this committee, has collected a great deal of information, and I feel the Committee on the Physical Welfare of Children will eventually make recommendations as to how the problem shall be met. I think the Board of Education should do more. They should have a larger and better equipped department of hygiene and physical culture, and I think it is up to them to examine these school children in regard to their general condition, and to provide the physical culture for the correction of some of these defects, such as lateral curvature, etc. Personally, I should be in favor of demanding that the department of physical education should be increased, and that many of these defects should be treated in the department of education. Our department of education is not only for the development of the minds of the children but also for their physical education.

Dr. E. A. Bogue:

I think the gentlemen who have already claimed your attention have said pretty much all we can digest to-night; but I am impelled to say a little word in regard to what Dr. Emerson has been so kind as to gather and give us. I do not know how far he has gone into the question of prevention of dental diseases—we are largely a body of dentists here—but in speaking of the use of antiseptic mouth washes, he touched a tender point when he said a bland alcoholic mouth wash was the most efficient thing that could be advised, as far as he knew. It is eminently true, I believe. There is altogether too much effort made to sell mouth washes of whose value we know very little.

In regard to the particular matter which Dr. Cronin has brought up, I take occasion to indite the following, in the hope of making it pointed:

A medical gentleman of my acquaintance, having large experience among children, has lately stated that if he were allowed to choose twenty-five women to take care of one hundred babies, taken indiscriminately from so-called good or bad surroundings and families, those babies would almost all of them be brought up to maturity physically sound and healthful, and subsequently would become good and worthy citizens.

On the other hand, he asserts that he can pick out twenty-five other women in whose care one hundred of the most perfect, well-formed, well born babies may be placed, and the majority of them will die before maturity, while the remainder will come under the head of undesirable citizens; being so deficient in health and strength that their mental vision will be warped and abnormal. From such as these come the paupers and criminals.

Dr. Cronin's idea is, I think, to detect these paupers, criminals and invalids in their incipient stages, and to engage as far as he may the good offices of the state for their rescue. His argument, if I understand him correctly, is that the expense of engaging the twenty-five, or twenty-five thousand good women to stand temporarily in "*loco parentis*" to these children will be infinitely less than the sum required later on for the cost of reformatories, prisons and hospitals for these same children if not properly cared for while children.

As a very large number of the manifestations of physical disease that underlie mental disqualifications are found in the ter-

ritory that is the special domain of this association, Dr. Cronin is right in presenting his case here, and asking for the sympathy and co-operation of every one of our members,—first, as citizens of whatever country, and second, as professional men having special knowledge of the parts involved.

When, therefore, we reflect that diagnosis is the first and most important step in the treatment of any affection, and that there are gentlemen in this room, who are able to tell from the contour lines of the face of any child of 6 years or upward, almost exactly the condition of the nasal passages and of the dental arches, and to form a very fair estimate of the condition of the pharynx, it will be recognized that many more of the features, which go to make up a careful diagnosis of those conditions, are understood to-day as they never have been before; that the earnest student along these lines can hardly help being interested in the subject that Dr. Cronin brings before us, and can hardly help volunteering to render all the assistance that lies in his power both as professional man and citizen.

The President:

It shall never be said that a meeting of this importance was so arranged that there was no opportunity for a word from volunteers. There is such opportunity now.

Dr. H. C. Ferris:

I wish to add one little mite as the result of an examination I had the pleasure of making of the two truant schools at the solicitation of Dr. Maxwell. With your permission I will read the result of my effort:

I made an examination of the hygienic condition of these pupils, and divided them into four classes, A, B, C, D.

A represented a normal mouth.

B represented teeth covered with bacteriological plaques or green stain.

C represented teeth covered with bacteriological stain and tartar.

D represented the same as C with indication of chemical disintegration of the enamel.

In the 107 children examined in Brooklyn there were found:
Ten cases of malocclusion.

A	.....	None
B	.....	29
C	.....	53
D	.....	25
Of the 57 examined in Manhattan there were found:		
A	.....	1
B	.....	32
C	.....	21
D	.....	3

In each instance the children in the C or D classes proved to be anemic or otherwise unhealthy looking children, and the reaction of their salivary secretions were abnormal; also, the mouths in these two classes show the greatest number of cavities or carious formation, which prove that the hygienic condition of the oral cavity is a diagnostic point which cannot be overlooked in determining the physical condition of the system.

Bacteriological study of this cavity proves that in proportion to the presence of germs, is the vitality of the patient reduced, and his susceptibility to diseases, (as diphtheria, tuberculosis, pneumonia, etc.,) caused by such organisms, increased.

In making this examination, I stood the boys in a line, all having shaven heads and being clad alike, and I could pick out those who had the greatest number of cavities from their facial expression and their anemic condition.

The teeth examined in Brooklyn averaged 7 cavities and two extractions; in Manhattan, 6 cavities and 2 extractions.

I am sure that Dr. Maxwell has much interest in the teeth of the children of the public schools, as he has been sufficiently interested to have them examined.

Dr. T. P. Hyatt, of Brooklyn:

I feel delighted to think that this matter is now attracting the attention of the dental profession. When the New York State Dental Society appointed me chairman of a committee for the examination of the condition of children's teeth, I went into it with enthusiasm. Though the time was short, we made an examination of 559 children from the public schools. I examined one lot in a good neighborhood, and one in a poor. There were only thirteen of those children that did not need any teeth attended to. In the teeth of those that did, there were over 3,000 cavities. The main point is this: One gentleman said he

thought it was up to the Board of Education to do a certain kind of work. The Board of Education is giving public lectures on the subject of dentistry. I have had the privilege of giving several during the last three years, on the care of the teeth; but the handicap has been that the dental profession, as a profession, have not gone into the work. The medical profession has, and the result is that in the examination of school children for any of these physical defects; we have qualified men making examinations, but we have not as yet any regular qualified men to make dental examinations.

In one of the charts shown on the board to-night, of the truant school, out of fifty examined, only thirty-six needed attention. Without casting any discredit on the examiner, I also examined about fifty in the truant school on Jamaica avenue, and I found about 300 teeth that needed attention.

I notice that one or two of the gentlemen called attention to the importance of the teeth in relation to the general hygiene of the body. The dental profession must not only educate the public, and the medical profession, but themselves as well in that respect. I have only met one physician in all my experience who appreciated this fact. This was Dr. Wilberforce Smith, of London, England. I knew him when a boy, and naturally he was interested in my having become a dentist, and said he considered that the American dentists led the world. He had in his equipment two mouth mirrors and six explorers, with which he examined the patients' mouths, and then he refused to treat them until the dentist had attended to their teeth, if they required attention.

I think the dental profession should co-operate with the Board of Education, and see that there are some dentists working with the Board of Health and the Board of Education in making these examinations, and in stating what kind of work should be done. It is not only necessary to find out that work should be done, but we should advise the patient what kind of work should be done.

I am delighted, Mr. President, that this Society has seen fit to bring up a question like this, and my only regret is that this room does not extend three blocks in size and be filled with dentists.

The President:

Will Dr. Cronin kindly add what he pleases in closing the discussion?

Dr. Cronin:

I feel amply repaid for any trouble I may have had in preparing this paper, by the intelligent discussion it has brought out. I have never had such an intelligent and general discussion as to-night. We see how the work interests the psychologists, the sociologists and the clergymen. I feel glad to have stimulated all these various professions in this line of thought.

Dr. Noble tells us about his experience in Montclair. Some of the children are blessed with happy environment, and in spite of their defects are led into the proper way. We must be interested as citizens and taxpayers in the comfort of others, as well as those in our own households. A report of the Board of Charities and Correction, asked for \$5,000,000 to carry out more fully their work.

I remember Mr. William H. Allen, when he asked me to read a paper before the convention of Charities and Correction, was almost ostracized for introducing school inspection, but we afterwards proved that there was good reason for doing it. Trachoma is difficult to diagnose, and oculists will disagree among themselves as to whether any individual is a true case or not.

When I undertook the work of recording bad teeth I did not know much about it, but divided the defects into degrees of decay according to the condition found.

1. If there was a stain or erosion of the enamel, first degree.
2. If there was a cavity, second degree.
3. If there was nothing but a shell, third degree.
4. If the tooth was absent, fourth degree.

Take these things in regard to the eye—if it is trachoma or conjunctivitis, we do not split hairs, but see that it is attended to.

In New York City large tonsils do not atrophy within a year. Of course, we like to be nice once in a while and say no matter how well the operation is done, it is apt to recur; but the man who says that does not really mean it—he means if it is done well it would not recur, and I think he is right!

One trouble is, there is no unification of report—no way that a man from Montclair will use the same phraseology that I do, and have me understand what he is talking about. When the

doctor realizes what I mean, he finds it is the same thing. He is mixing up examinations with inspections. The inspection is looking after the contagious element. We find out once about every five months how many contagious cases there are. The other cases are found out in the morning examination by the nurse and sent to the inspector.

I had an investigation made in February, 1906, of this same school, where we found all these defectives, and I told the Doctor to inquire about every child who was absent the day before, and find out why. Forty of 80 were absent because they had tooth-ache or gum boil, and yet some say the temporary teeth do not need any treatment.

I agree with Dr. Bryant. This thing was originally gotten out on nerve, and we needed something to back it up. There is nothing conclusive, but it is so highly suggestive that any man must not be of the proper bent of mind when he will not give this system a full trial in preference to allowing it to go unheeded. The proper way to get good mental power is to get a proper draught and ventilation of the head properly by clearing the nares. Examine 1,000 children, and the percentages of defect will be the same, no matter what multiple of that 1,000 you take.

In regard to visual defects, 29% is not right. Our standard is too low. They ought to read 20-15. We are putting it at 20-20, and quite a number can only read one or two lines at that, and yet we call it perfect vision.

The English people are way ahead of us, when they atropinize the eyes and test the refractive power of the crystalline lens. The peculiar accommodating condition of children's eyes is such that they can read the 20-20 line, but if they are made to continue that effort in school for any length of time, it must result disastrously.

We do not find the low percentages Dr. Cornell does. It is drawing matters between the actual mental state of the child and the defects as they exist. But that is another story.

The children of the slums are way ahead of the middle classes and the upper classes. Children of the slums have compared themselves with the child beside them, and found they dribbled from the mouth and nose the other symptoms, and have even anticipated the visit of the inspector and have had operations attended to before they were told to do so; many of these little

Jew children, of their own accord, have had their adenoids and tonsils removed. You hear so much talk about the operation. On the following Monday there was an ice cream party, and all were there. I saw six different mothers and children, all going to Mt. Sinai Hospital to have their adenoids and tonsils removed from the children so they could attend the ice cream party; also those who had tonsils and adenoids removed were allowed to attend.

The cripples are being attended to now by Department of Education, are being called for, &c. They are now making arrangements for thirty inspectors for testing the vision, etc., in schools. I believe the physicians should be paid for all the work performed for the poor, but the question is, who will pay them?

Dr. Emerson's remarks were very instructive. The presence of these enlarged glands, of these decayed teeth,—what part do they play? It is a factor that has never been worked out. Those defects are usually of the oral and associated cavities,—the naso-pharynx, etc. There is no question that the period of incubation of contagious diseases is much lessened when the patient has any defect whatever. It is absolutely so where there is any break in the continuity of the skin. You will find the infection of scarlet fever, for instance, starting from the point where the break is.

The maps will soon be ready for those districts, to show where dispensaries are. Every teacher in the City of New York will have a large map showing the boundaries of her district, and what each dispensary in it will attend to for the children of her class.

The Rev. Dr. Travis said something about the line of thought this leads to. If we will always use our conscious self to do things, we may not be doing our best. If I were conscious of what I am doing now, I might not be able to talk to you in this fashion. For every concept, we have seven lines of thought, like the seven prismatic colors, and if there is anything to interfere with any of these, we have an imperfect image. I believe that every child, all things being equal, when born acts the same, and cries the same, and looks for something to eat, and it is only the environment surrounding it that makes the change. As long as they occupied God's home in the mother, they are alike, and as soon as they reach these external surroundings,

the difference comes. Take the very act of walking—the baby does it consciously first. Just using the symbol of walking, and seeing how the baby does walk, and seeing how a child was defective from early life, doing nothing right, not thinking right, or walking right, or having any proper control over its actions, you can see they might drift into those channels that we call pauperism, and criminality, etc. I believe they should all be shut up, as they are, and the unfortunate thing for themselves and community is they do not die earlier.

The President:

Dr. Cronin has the happy faculty of being both entertaining and interesting. We appreciate the work he has done in this city. He has induced many to walk along the same line, and the result will be a benefit to the human race. We thank him for what he has done for us this evening. We are also under obligations to Dr. Emerson, Dr. Noble, Dr. Bryant, Dr. Cornell, Rev. Dr. Travis, Dr. Fisk, and Dr. Hyatt. We thank them all, and invite them to come again. The prospect is this society will have in the near future another meeting upon this same general subject, approaching it, perhaps, a little more from the dental standpoint.

Adjourned.

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